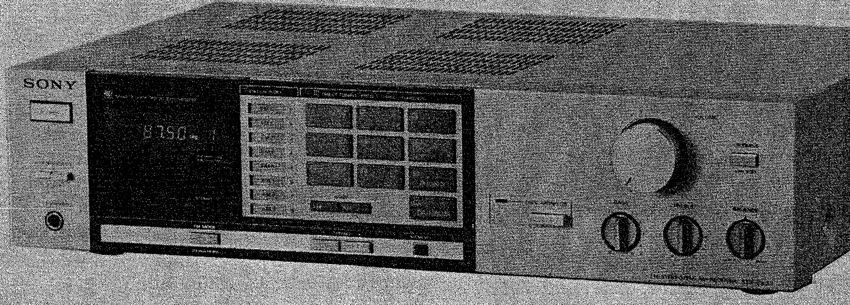
STR-VX22

US Model
Canadian Model



FM STEREO/FM-AM RECEIVER

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8 ohm loads, both channels driven, from 20 - 20,000 Hz; rated 30 watts per channel minimum RMS power, with no more than 0.03% total harmonic distortion from 250 milliwatts to rated output.

OTHER SPECIFICATIONS

Amplifier section

Dynamic headroom	1.4 dB ('78 IHF)
Harmonic distortion	Less than 0.03% at rated output
Intermodulation (IM) distortion (60 Hz : 7 kHz = 4 : 1)	Less than 0.03% at rated output
Frequency response	PHONO : RIAA equalization curve ±0.5 dB DAD/AUX, TAPE 10 Hz - 70 kHz $^{+0}_{-1}$ dB
Residual noise	Less than 200 μV (8 ohms, network A)
Damping factor	35 (8 ohms, 1 kHz)

— Continued on page 2 —

SONY®

SERVICE MANUAL

535

Inputs

	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	2.5 mV	50 kΩ	150 mV	74 dB 74 dB* (A, 2.5 mV)
DAD/AUX TAPE	150 mV	50 kΩ	—	96 dB 79 dB* (A, 150 mV)

* '78 IHF

Outputs	REC OUT Voltage 150 mV Impedance 10 k ohms SPEAKER A, B Accepts speakers of 8 to 16 ohms. HEADPHONES Accepts low and high impedance headphones.
Tone controls	BASS ±8 dB at 100 Hz TREBLE ±8 dB at 10 kHz
Loudness (att. 30 dB)	+ 8 dB at 100 Hz + 3 dB at 10 kHz

FM tuner section

Tuning range	87.5 MHz - 108 MHz
Antenna terminals	300 ohms, balanced 75 ohms, unbalanced
Intermediate frequency	10.7 MHz
Sensitivity at 50 dB quieting	17.3 dBf, 4 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable sensitivity	11.2 dBf, 2 μV (IHF)
Signal-to-noise ratio	80 dB (mono), 75 dB (stereo)
Harmonic distortion	0.15% (mono), 0.25% (stereo) at 1 kHz
IM distortion	0.15% (mono), 0.25% (stereo)
Separation	45 dB at 1 kHz
Frequency response	30 Hz - 15 kHz $^{+0.5}_{-2}$ dB
Selectivity	60 dB at 400 kHz
Capture ratio	1.0 dB
AM suppression ratio	54 dB
Image response ratio	50 dB
IF response ratio	90 dB
Spurious response ratio	70 dB
RF intermodulation	60 dB (IHF)
Auto-tuning threshold	Approx. 45 dBf

AM tuner section

Tuning range	530 - 1,610 kHz (with the AM channel plan selector set at 10 kHz) 522 - 1,602 kHz (with the AM channel plan selector set at 9 kHz)
Antenna	Ferrite-bar antenna External antenna terminal
Intermediate frequency	450 kHz
Usable sensitivity	300 μV/m, ferrite-bar antenna (at 1,000 kHz) 100 μV, external antenna (at 1,000 kHz)
Signal-to-noise ratio	54 dB (at 50 mV/m)
Harmonic distortion	0.3% (at 50 mV/m, 400 Hz)
Selectivity	40 dB (10 kHz)

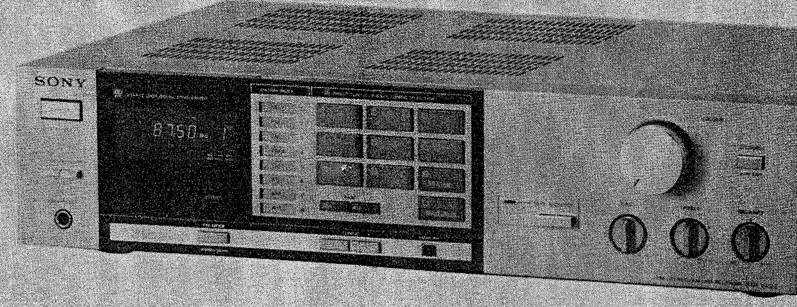
General

System	Tuner section : PLL quartz-locked digital synthesizer system Preamplifier section : low-noise NF type equalizer amp Power amplifier section : quasi-complementary SEPP
Power requirements	120 V ac, 60 Hz Memory back-up power : 3 V dc, two batteries, size AA (IEC designation R6) Battery life : approx. 1 year with Sony SUM-3(NS) New Super Batteries (or Eveready Heavy Duty Batteries No. 1215)
Power consumption	US model : 70 watts Canadian model : 110 watts
Ac outlets	One switched (100 watts) One unswitched (100 watts)
Dimensions	Approx. 430 × 105 × 305 mm (w/h/d) (17 × $4\frac{1}{4}$ × $12\frac{1}{8}$ inches) including projecting parts and controls
Weight	Approx. 5.8 kg (12 lbs 13 oz) net Approx. 7.1 kg (15 lbs 11 oz) in shipping carton

STR-VX22

PRELIMINARY

US Model
Canadian Model



FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8 ohm loads, both channels driven, from 20 - 20,000 Hz; rated 30 watts per channel minimum RMS power, with no more than 0.03% total harmonic distortion from 250 milliwatts to rated output.

OTHER SPECIFICATIONS

Amplifier section

Dynamic headroom	1.4 dB ('78 IHF)
Harmonic distortion	Less than 0.03% at rated output
Intermodulation (IM) distortion (60 Hz : 7 kHz = 4 : 1)	Less than 0.03% at rated output
Frequency response	PHONO: RIAA equalization curve ±0.5 dB DAD/AUX, TAPE 10 Hz - 70 kHz $^{+0}_{-1}$ dB
Residual noise	Less than 200 μV (8 ohms, network A)
Damping factor	35 (8 ohms, 1 kHz)

Inputs

	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	2.5 mV	50 kΩ	150 mV	74 dB 74 dB* (A, 2.5 mV)
DAD/AUX TAPE	150 mV	50 kΩ	—	96 dB 79 dB* (A, 150 mV)

* '78 IHF

Outputs	REC OUT Voltage 150 mV Impedance 10 k ohms SPEAKER A, B Accepts speakers of 8 to 16 ohms.

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

SONY®

SERVICE MANUAL

	HEADPHONES Accepts low and high impedance headphones.
Tone controls	BASS ±8 dB at 100 Hz TREBLE ±8 dB at 10 kHz
Loudness (att. 30 dB)	+8 dB at 100 Hz +3 dB at 10 kHz

FM tuner section

Tuning range	87.5 MHz - 108 MHz
Antenna terminals	300 ohms, balanced 75 ohms, unbalanced
Intermediate frequency	10.7 MHz
Sensitivity at 50 dB quieting	17.3 dBf, 4 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable sensitivity	11.2 dBf, 2 μV (IHF)
Signal-to-noise ratio	80 dB (mono), 75 dB (stereo)
Harmonic distortion	0.15% (mono), 0.25% (stereo) at 1 kHz
IM distortion	0.15% (mono), 0.25% (stereo)
Separation	45 dB at 1 kHz
Frequency response	30 Hz - 15 kHz $^{+0.5}_{-2}$ dB
Selectivity	60 dB at 400 kHz
Capture ratio	1.0 dB
AM suppression ratio	54 dB
Image response ratio	50 dB
IF response ratio	90 dB
Spurious response ratio	70 dB
RF intermodulation	60 dB (IHF)
Auto-tuning threshold	Approx. 45 dBf

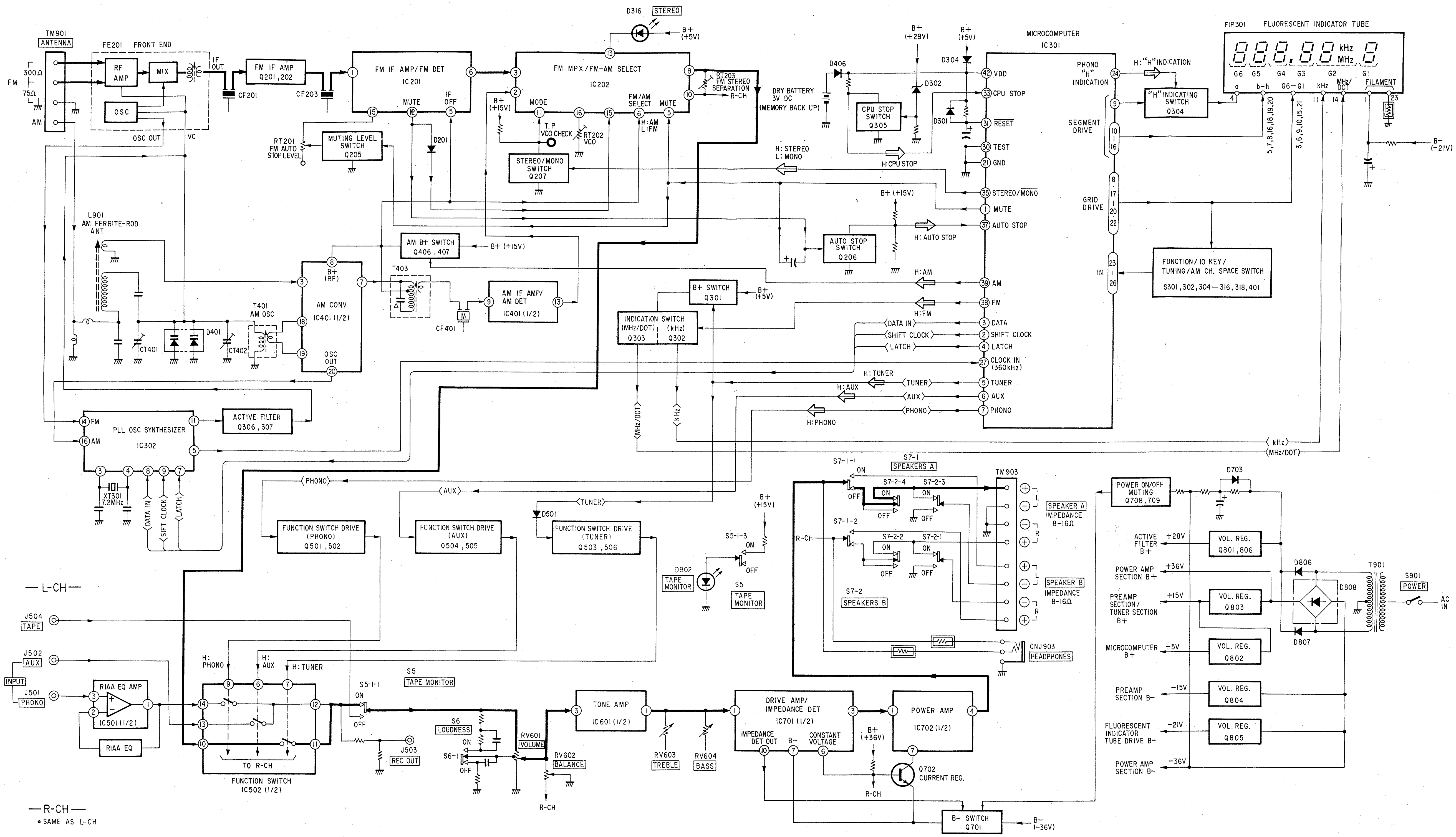
AM tuner section

Tuning range	530 - 1,610 kHz (with the AM channel plan selector set at 10 kHz) 522 - 1,602 kHz (with the AM channel plan selector set at 9 kHz)
Antenna	Ferrite-bar antenna External antenna terminal
Intermediate frequency	450 kHz
Usable sensitivity	300 μV/m, ferrite-bar antenna (at 1,000 kHz) 100 μV, external antenna (at 1,000 kHz)
Signal-to-noise ratio	54 dB (at 50 mV/m)
Harmonic distortion	0.3% (at 50 mV/m, 400 Hz)
Selectivity	40 dB (10 kHz)

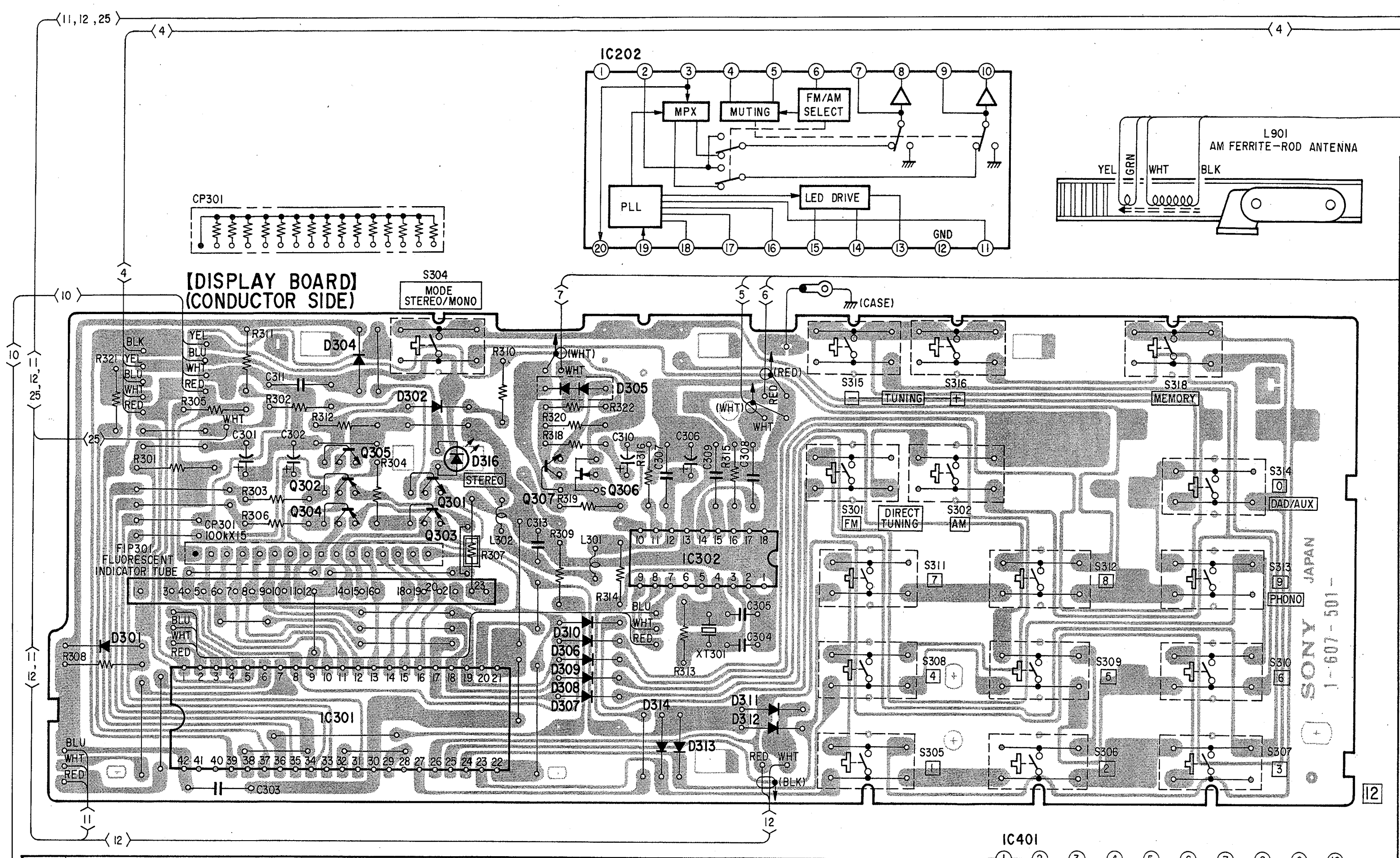
General

System	Tuner section: PLL quartz-locked digital synthesizer system Preamplifier section: low-noise NF type equalizer amp Power amplifier section: pure-complementary SEPP
Power requirements	120 V ac, 60 Hz Memory back-up power: 3 V dc, two batteries, size AA (IEC designation R6) Battery life: approx. 1 year with Sony SUM-3(NS) New Super Batteries (or Eveready Heavy Duty Batteries No. 1215)
Power consumption	US model: 70 watts Canadian model: 110 watts
Ac outlets	One switched (100 watts) One unswitched (100 watts)
Dimensions	Approx. 430 × 105 × 305 mm (w/h/d) (17 × 4¼ × 12⅛ inches) including projecting parts and controls
Weight	Approx. 5.8 kg (12 lbs 13 oz) net Approx. 7.1 kg (15 lbs 11 oz) in shipping carton

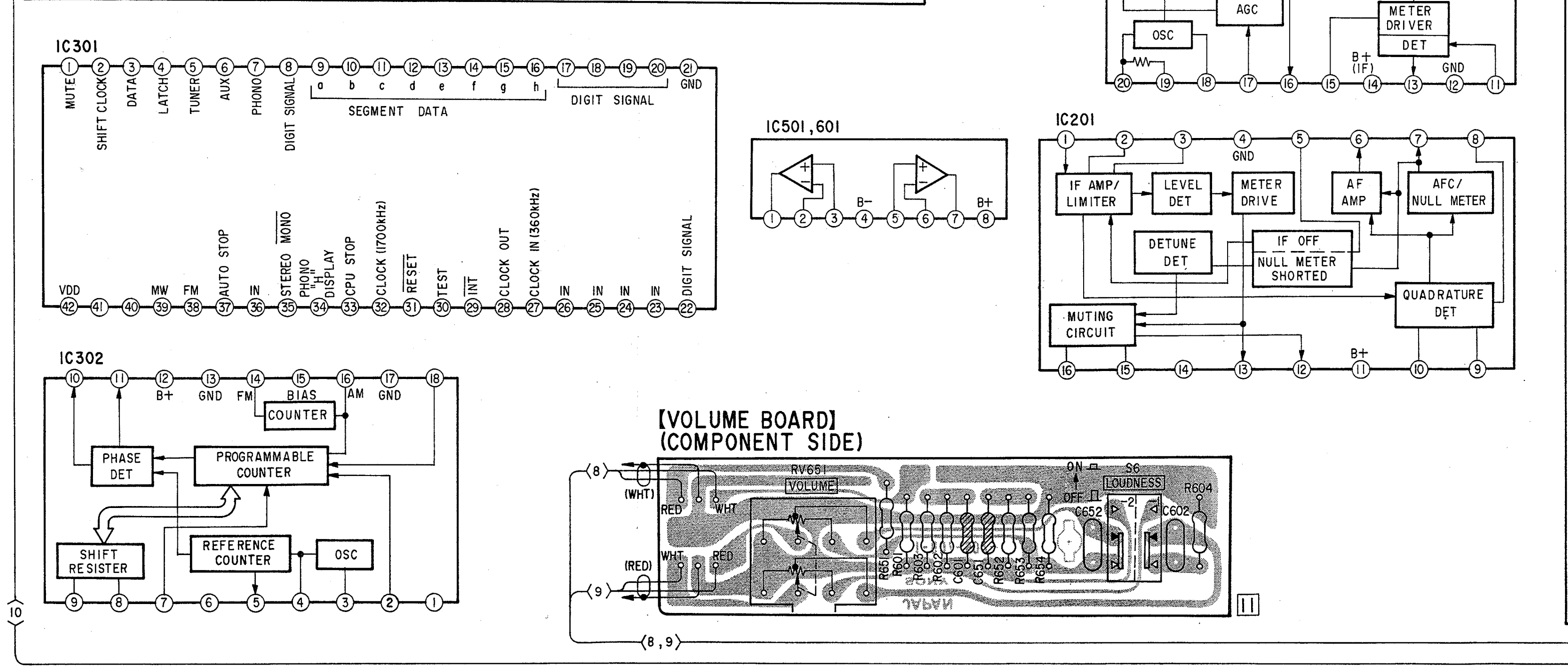
1. BLOCK DIAGRAM


TM901
ANTENNA
FM
300Ω
75Ω
AM
FE201 FRONT END
RF AMP
MIX
OSC
IF OUT
OSC OUT
VC
CF201
FM IF AMP
Q201,202
CF203
FM IF AMP/FM DET
IC201
MUTE
IF OFF
D316
STEREO
B+ (+5V)
FM MPX/FM-AM SELECT
IC202
MODE
FM/AM SELECT
MUTE
H:AM
L:FM
B+ (+15V)
T.P
VCO CHECK
RT202 VCO
RT203 FM STEREO SEPARATION
R-CH
STEREO/MONO SWITCH
Q207
MUTING LEVEL SWITCH
Q205
RT201 FM AUTO STOP LEVEL
D201
DRY BATTERY
3V DC
(MEMORY BACK UP)
H: STEREO
L: MONO
D406
B+ (+28V)
B+ (+5V)
D304
D302
D301
CPU STOP SWITCH
Q305
H:CPU STOP
MICROCOMPUTER
IC301
VDD
CPU STOP
RESET
TEST
GND
STEREO/MONO
MUTE
AUTO STOP
AM
FM
DATA
SHIFT CLOCK
LATCH
CLOCK IN (360kHz)
TUNER
AUX
PHONO
PHONO "H" INDICATION
SEGMENT DRIVE
GRID DRIVE
IN
H:"H" INDICATION
"H" INDICATING SWITCH
Q304
FIP301 FLUORESCENT INDICATOR TUBE
kHz
MHz
G6 G5 G4 G3 G2 G1
a b-h G6-G1 kHz MHz/DOT FILAMENT
5,7,8,16,18,19,20
3,6,9,10,15,21
B- (-21V)
FUNCTION/10 KEY/ TUNING/AM CH. SPACE SWITCH
S301,302,304-316,318,401
B+ (+15V)
AUTO STOP SWITCH
Q206
H: AUTO STOP
H:AM
H:FM
L901
AM FERRITE-ROD ANT
AM B+ SWITCH
Q406,407
T403
AM CONV
IC401 (1/2)
B+ (RF)
OSC OUT
T401
AM OSC
D401
CT401
CT402
AM IF AMP/ AM DET
IC401 (1/2)
CF401
B+ SWITCH
Q301
INDICATION SWITCH
(MHz/DOT) (kHz)
Q303 Q302
DATA IN
SHIFT CLOCK
LATCH
H: TUNER
H: AUX
H:PHONO
MHz/DOT
kHz
PLL OSC SYNTHESIZER
IC302
ACTIVE FILTER
Q306,307
XT301 7.2MHz
DATA IN
SIFT CLOCK
LATCH
PHONO
AUX
TUNER
D501
FUNCTION SWITCH DRIVE (PHONO)
Q501,502
FUNCTION SWITCH DRIVE (AUX)
Q504,505
FUNCTION SWITCH DRIVE (TUNER)
Q503,506
D902
TAPE MONITOR
S5-1-3
ON
OFF
S5
TAPE MONITOR
— L-CH —
J504
TAPE
J502
AUX
INPUT
J501
PHONO
RIAA EQ AMP
IC501 (1/2)
RIAA EQ
H: PHONO
H: AUX
H: TUNER
TO R-CH
FUNCTION SWITCH
IC502 (1/2)
S5-1-1
ON
OFF
S5
TAPE MONITOR
J503
REC OUT
S6
LOUDNESS
S6-1
RV601
VOLUME
RV602
BALANCE
R-CH
TONE AMP
IC601 (1/2)
RV603
TREBLE
RV604
BASS
DRIVE AMP/ IMPEDANCE DET
IC701 (1/2)
IMPEDANCE DET OUT
B-
CONSTANT VOLTAGE
B+ (+36V)
POWER AMP
IC702 (1/2)
Q702
CURRENT REG.
R-CH
B- SWITCH
Q701
B- (-36V)
S7-1-1
S7-1
SPEAKERS A
S7-2-4
S7-2-3
S7-1-2
S7-2-2
S7-2-1
S7-2
SPEAKERS B
TM903
SPEAKER A
IMPEDANCE 8-16Ω
SPEAKER B
IMPEDANCE 8-16Ω
CNJ903
HEADPHONES
— R-CH —
• SAME AS L-CH
POWER ON/OFF MUTING
Q708,709
D703
ACTIVE FILTER B+
+28V
VOL. REG.
Q801,806
POWER AMP SECTION B+
+36V
PREAMP SECTION/ TUNER SECTION B+
+15V
VOL. REG.
Q803
MICROCOMPUTER B+
+5V
VOL. REG.
Q802
PREAMP SECTION B-
-15V
VOL. REG.
Q804
FLUORESCENT INDICATOR TUBE DRIVE B-
-21V
VOL. REG.
Q805
POWER AMP SECTION B-
-36V
D806
D807
D808
T901
S901
POWER
AC IN

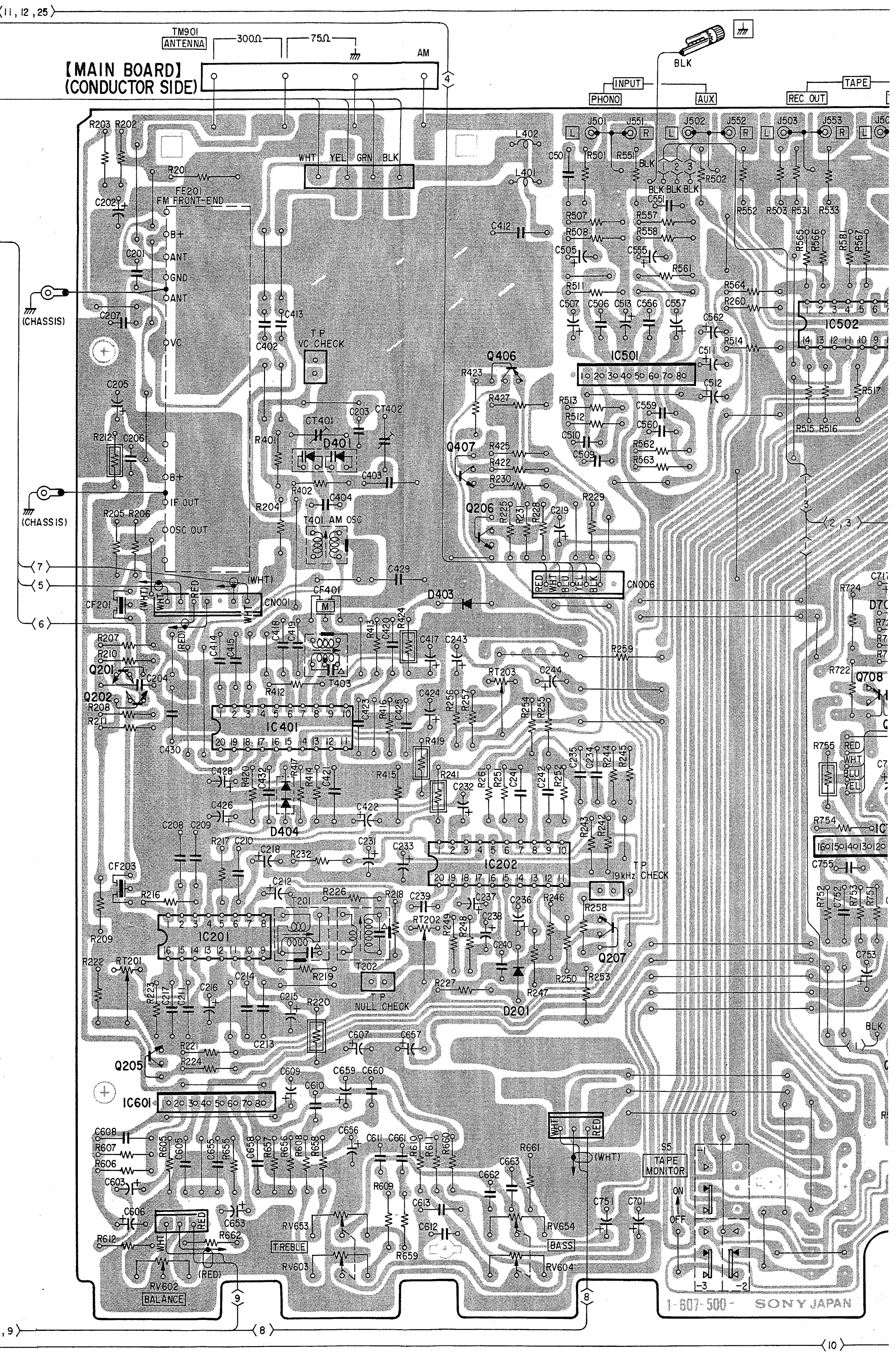
2. MOUNTING DIAGRAM

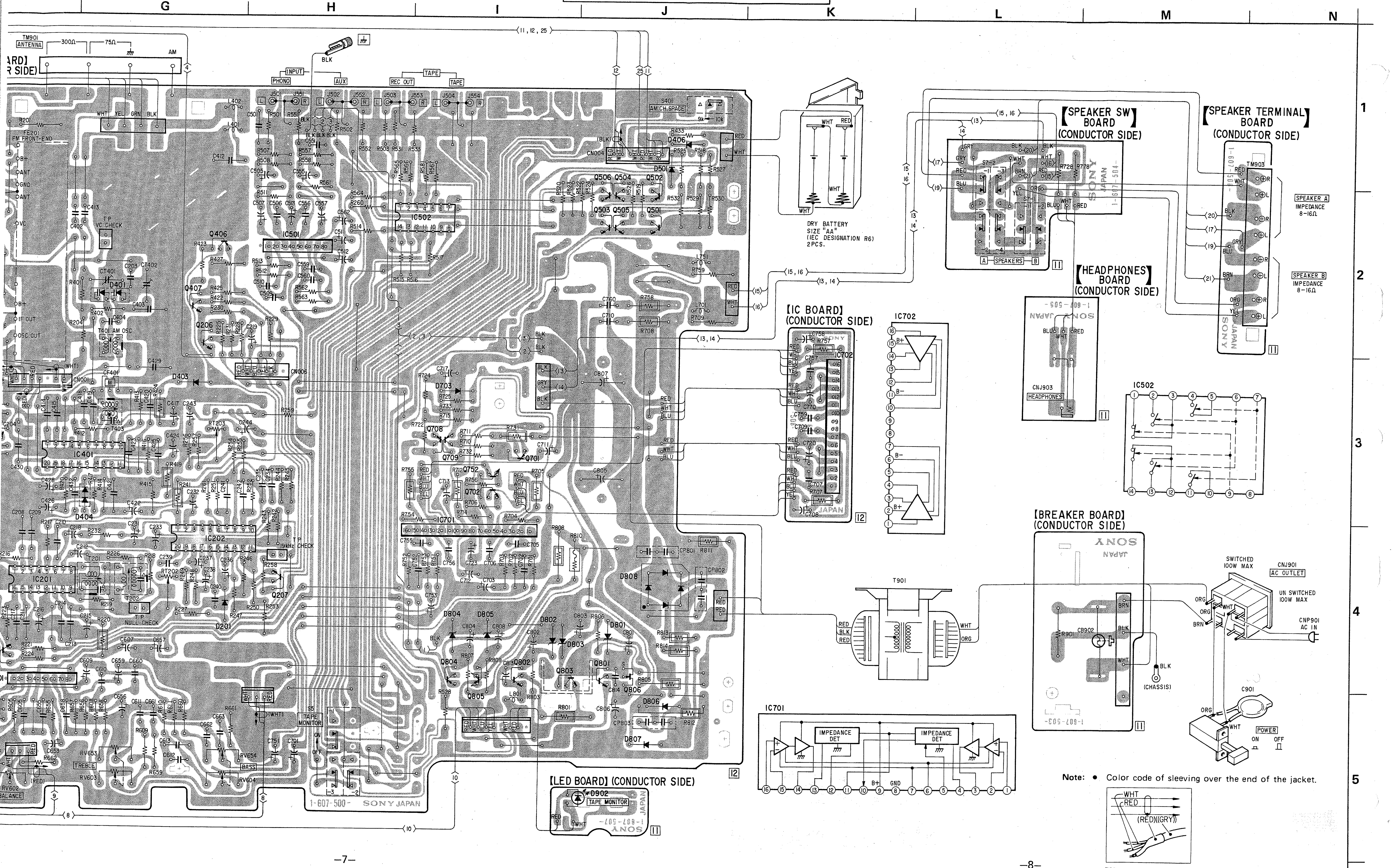

A
B
C
D
E
1
2
3
IC202
MPX
MUTING
FM/AM SELECT
PLL
LED DRIVE
GND
CP301
L901
AM FERRITE-ROD ANTENNA
YEL
GRN
WHT
BLK
【DISPLAY BOARD】
(CONDUCTOR SIDE)
S304
MODE
STEREO/MONO
(CASE)
S315
S316
TUNING
S318
MEMORY
S314
DAD/AUX
S301
FM
DIRECT TUNING
S302
AM
S311
S312
S313
PHONO
S308
S309
S310
S305
S306
S307
FIP301
FLUORESCENT INDICATOR TUBE
IC301
IC302
XT301
D301
D302
D304
D305
D306
D307
D308
D309
D310
D311
D312
D313
D314
D316
Q301
Q302
Q303
Q304
Q305
Q306
Q307
STEREO
SONY
JAPAN
1-607-501-
12

IC Q		IC301	305 302 304	301 303	307 306	IC302	
D	301		304	302 316	305 309 310 308 306 307	314 313	311 312


4
5
IC401
RF AMP
MIX
IF AMP
B+ (RF)
AGC
OSC
METER DRIVER
DET
B+ (IF)
GND
IC301
MUTE
SHIFT CLOCK
DATA
LATCH
TUNER
AUX
PHONO
DIGIT SIGNAL
SEGMENT DATA
a b c d e f g h
DIGIT SIGNAL
GND
VDD
MW
FM
AUTO STOP
IN
STEREO MONO
PHONO
DISPLAY
CPU STOP
CLOCK (1700kHz)
RESET
TEST
INT
CLOCK OUT
CLOCK IN (360kHz)
IN
DIGIT SIGNAL
IC501, 601
B−
B+
IC201
IF AMP/ LIMITER
LEVEL DET
METER DRIVE
AF AMP
AFC/ NULL METER
DETUNE DET
IF OFF NULL METER SHORTED
QUADRATURE DET
MUTING CIRCUIT
GND
B+
IC302
BIAS
COUNTER
PHASE DET
PROGRAMMABLE COUNTER
SHIFT RESISTER
REFERENCE COUNTER
OSC
B+
GND
FM
AM
【VOLUME BOARD】
(COMPONENT SIDE)
RV651
VOLUME
S6
LOUDNESS
ON
OFF
R604
C652
C602
(WHT)
(RED)
11

IC , Q	D
	406
	501
506 504 502 IC502 503 505 501	
406 IC501	
407	401
206	
	403 703
201 202 708 709 701 IC401 752 702	
	404
IC202 IC701	
IC201 207	808
	201
205	804 805 802 803 801
IC601 804 805 802 803 801 806	806
	807
	902


F
G
H
TM901
ANTENNA
300Ω
75Ω
AM
【MAIN BOARD】
(CONDUCTOR SIDE)
BLK
INPUT
PHONO
AUX
TAPE
REC OUT
(CHASSIS)
FE201
FM FRONT-END
T P
VC CHECK
T401 AM OSC
CN001
CN006
IC401
IC501
IC502
IC202
IC201
IC601
T P
19kHz CHECK
NULL CHECK
T202
S5
TAPE MONITOR
ON
OFF
RV653
TREBLE
RV654
BASS
RV602
BALANCE
RV603
RV604
SONY JAPAN
1-607-500-

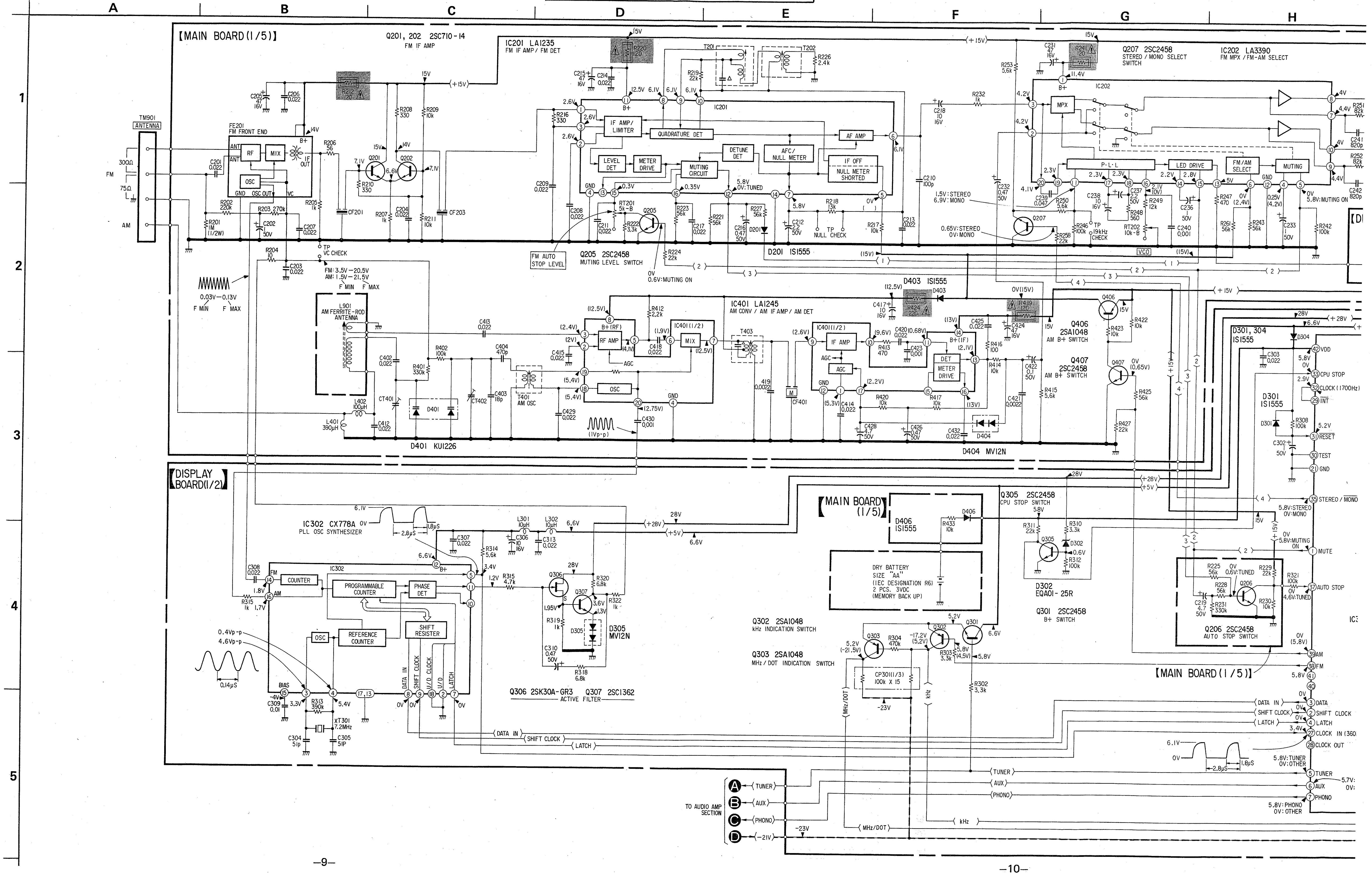

G
H
I
J
K
L
M
N
1
2
3
4
5
TM901 ANTENNA
300Ω
75Ω
AM
FE201 FM FRONT-END
INPUT
PHONO
AUX
TAPE
REC OUT
TAPE
S401 AM CH. SPACE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS.
【SPEAKER SW】 BOARD (CONDUCTOR SIDE)
【SPEAKER TERMINAL】 BOARD (CONDUCTOR SIDE)
SPEAKER A IMPEDANCE 8–16Ω
SPEAKER B IMPEDANCE 8–16Ω
A SPEAKERS B
【HEADPHONES】 BOARD (CONDUCTOR SIDE)
CNJ903 HEADPHONES
【IC BOARD】 (CONDUCTOR SIDE)
IC702
IC502
IC501
IC401
IC202
IC201
IC701
T.P VC CHECK
T.P 19kHz CHECK
T.P NULL CHECK
T401 AM OSC
TREBLE
BASS
BALANCE
TAPE MONITOR
T901
【BREAKER BOARD】 (CONDUCTOR SIDE)
SWITCHED 100W MAX
CNJ901 AC OUTLET
UN SWITCHED 100W MAX
CNP901 AC IN
(CHASSIS)
C901
POWER
ON
OFF
IMPEDANCE DET
IMPEDANCE DET
B+
GND
【LED BOARD】 (CONDUCTOR SIDE)
D902 TAPE MONITOR
1-607-500- SONY JAPAN
1-607-504-
1-607-505-
1-607-503-
1-607-507-
WHT
RED
(RED)(GRY)

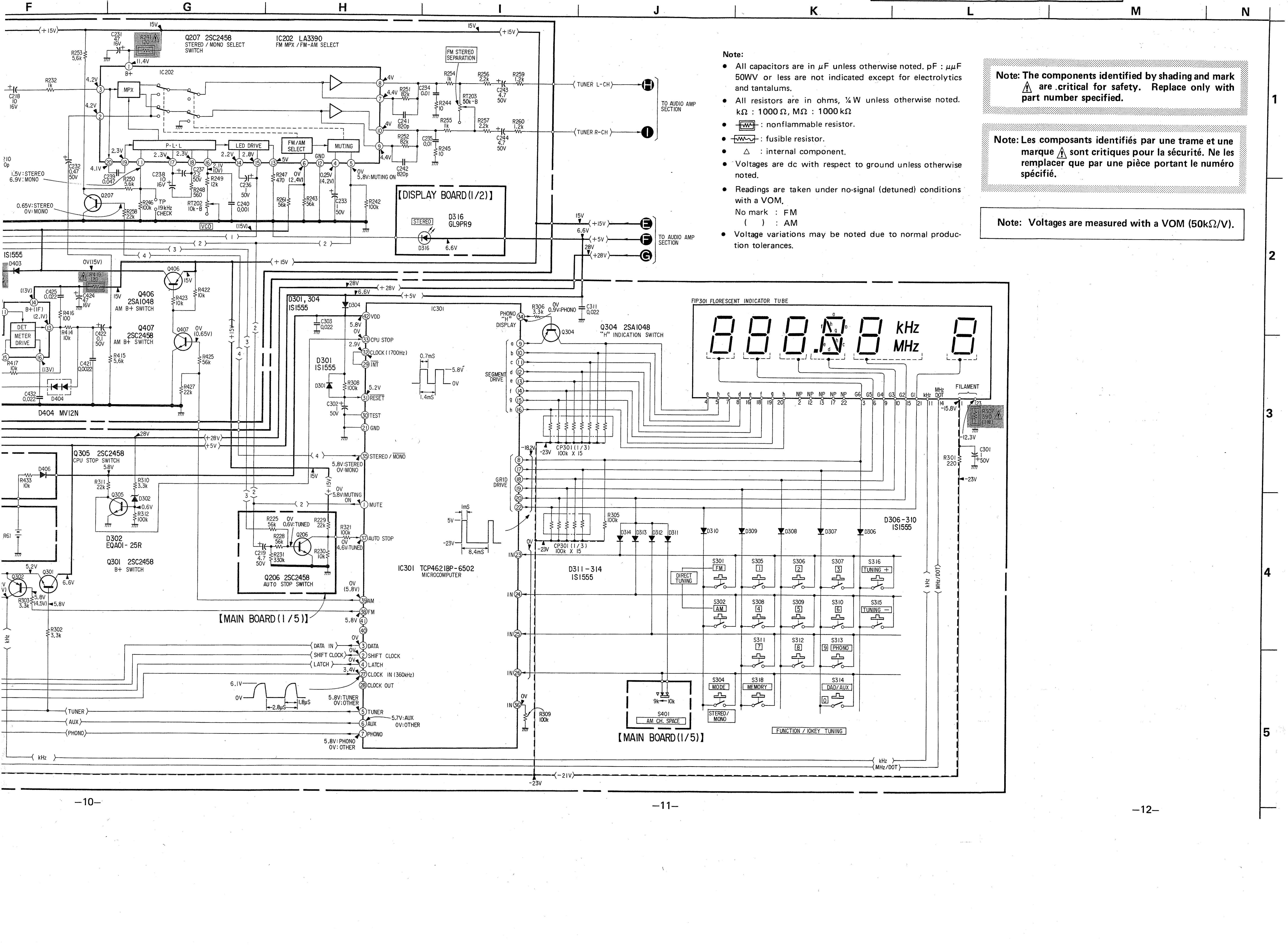
Note: • Color code of sleeving over the end of the jacket.

• [ ]: indicates side identified with part number.

3. SCHEMATIC DIAGRAM (1)

— Tuner/Indicator Section —


A
B
C
D
E
F
G
H
1
2
3
4
5
[MAIN BOARD (1/5)]
Q201, 202 2SC710-14
FM IF AMP
IC201 LA1235
FM IF AMP / FM DET
IC202 LA3390
FM MPX / FM-AM SELECT
Q207 2SC2458
STEREO / MONO SELECT SWITCH
TM901
ANTENNA
300Ω
FM
75Ω
AM
FE201
FM FRONT END
RF
MIX
OSC
IF OUT
CF201
CF203
IF AMP/ LIMITER
QUADRATURE DET
AF AMP
LEVEL DET
METER DRIVE
MUTING CIRCUIT
DETUNE DET
AFC/ NULL METER
IF OFF NULL METER SHORTED
5.8V 0V:TUNED
FM AUTO STOP LEVEL
Q205 2SC2458
MUTING LEVEL SWITCH
0V 0.6V:MUTING ON
D201 IS1555
TP NULL CHECK
TP VC CHECK
FM: 3.5V–20.5V
AM: 1.5V–21.5V
F MIN F MAX
0.03V–0.13V
F MIN F MAX
MPX
P·L·L
LED DRIVE
FM/AM SELECT
MUTING
1.5V:STEREO 6.9V:MONO
0.65V:STEREO 0V:MONO
Q207
TP 19kHz CHECK
RT202 10k-B
VCO
5.8V:MUTING ON
L901
AM FERRITE-ROD ANTENNA
IC401 LA1245
AM CONV / AM IF AMP / AM DET
RF AMP
MIX
OSC
AGC
IF AMP
DET
METER DRIVE
T401 AM OSC
T403
CF401
D401 KU1226
D404 MV12N
D403 IS1555
Q406 2SA1048
AM B+ SWITCH
Q407 2SC2458
AM B+ SWITCH
D301, 304 IS1555
D301 IS1555
VDD
CPU STOP
CLOCK (1700Hz)
INT
RESET
TEST
GND
STEREO / MONO
5.8V:STEREO 0V:MONO
MUTE
0V 5.8V:MUTING ON
AUTO STOP
4.6V:TUNED
AM
FM
DATA
SHIFT CLOCK
LATCH
CLOCK IN (360
CLOCK OUT
TUNER
5.8V:TUNER 0V:OTHER
AUX
PHONO
5.8V:PHONO 0V:OTHER
[DISPLAY BOARD (1/2)]
IC302 CX778A
PLL OSC SYNTHESIZER
IC302
COUNTER
PROGRAMMABLE COUNTER
PHASE DET
SHIFT RESISTER
OSC
REFERENCE COUNTER
DATA IN
SHIFT CLOCK
U/D CLOCK
U/D
LATCH
BIAS
XT301 7.2MHz
0.4Vp-p
4.6Vp-p
0.14μS
2.8μS
1.8μS
Q306 2SK30A-GR3
Q307 2SC1362
ACTIVE FILTER
D305 MV12N
[MAIN BOARD (1/5)]
D406 IS1555
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS. 3VDC (MEMORY BACK UP)
Q305 2SC2458
CPU STOP SWITCH
D302 EQA01-25R
Q301 2SC2458
B+ SWITCH
Q302 2SA1048
kHz INDICATION SWITCH
Q303 2SA1048
MHz / DOT INDICATION SWITCH
CP301(1/3) 100k X 15
Q206 2SC2458
AUTO STOP SWITCH
[MAIN BOARD (1/5)]
TO AUDIO AMP SECTION
Ⓐ TUNER
Ⓑ AUX
Ⓒ PHONO
Ⓓ -21V
-23V
MHz/DOT
kHz
DATA IN
SHIFT CLOCK
LATCH
+15V
+28V
+5V
28V


F
G
H
I
J
K
L
M
N
1
2
3
4
5
Q207 2SC2458
STEREO / MONO SELECT SWITCH
IC202 LA3390
FM MPX / FM-AM SELECT
IC202
MPX
P·L·L
LED DRIVE
FM/AM SELECT
MUTING
FM STEREO SEPARATION
RT203 50k-B
TUNER L-CH
TUNER R-CH
TO AUDIO AMP SECTION
1.5V : STEREO
6.9V : MONO
0.65V : STEREO
0V : MONO
TP 19kHz CHECK
RT202 10k-B
VCO
5.8V : MUTING ON
[DISPLAY BOARD (1/2)]
STEREO
D316 GL9PR9
1S1555
D403
Q406 2SA1048
AM B+ SWITCH
Q407 2SC2458
AM B+ SWITCH
DET METER DRIVE
D404 MV12N
D301, 304 1S1555
IC301
VDD
CPU STOP
CLOCK (1700Hz)
INT
RESET
TEST
GND
D301 1S1555
0.7mS
1.4mS
5.8V
0V
PHONO "H" DISPLAY
Q304 2SA1048
"H" INDICATION SWITCH
FIP301 FLORESCENT INDICATOR TUBE
kHz
MHz
FILAMENT
SEGMENT DRIVE
GRID DRIVE
CP301 (1/3) 100k X 15
Q305 2SC2458
CPU STOP SWITCH
D302 EQA01-25R
Q301 2SC2458
B+ SWITCH
STEREO / MONO
5.8V : STEREO
0V : MONO
MUTE
5.8V : MUTING ON
AUTO STOP
4.6V : TUNED
Q206 2SC2458
AUTO STOP SWITCH
1mS
8.4mS
IC301 TCP4621BP-6502
MICROCOMPUTER
AM
FM
[MAIN BOARD (1/5)]
DATA IN
SHIFT CLOCK
LATCH
DATA
CLOCK IN (360kHz)
CLOCK OUT
2.8μS
1.8μS
TUNER
AUX
PHONO
5.8V : TUNER
0V : OTHER
5.7V : AUX
0V : OTHER
5.8V : PHONO
0V : OTHER
D311-314 1S1555
D306-310 1S1555
DIRECT TUNING
S301 FM
S305 1
S306 2
S307 3
S316 TUNING +
S302 AM
S308 4
S309 5
S310 6
S315 TUNING −
S311 7
S312 8
S313 9 PHONO
S304 MODE
S318 MEMORY
S314 DAD/AUX
STEREO / MONO
S401 AM CH. SPACE
9k ← 10k
FUNCTION / 10KEY TUNING
R307 390 (1/4W)
kHz
MHz/DOT
−23V
−21V

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : nonflammable resistor.
- ∿ : fusible resistor.
- △ : internal component.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM.
  No mark : FM
  ( ) : AM
- Voltage variations may be noted due to normal production tolerances.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

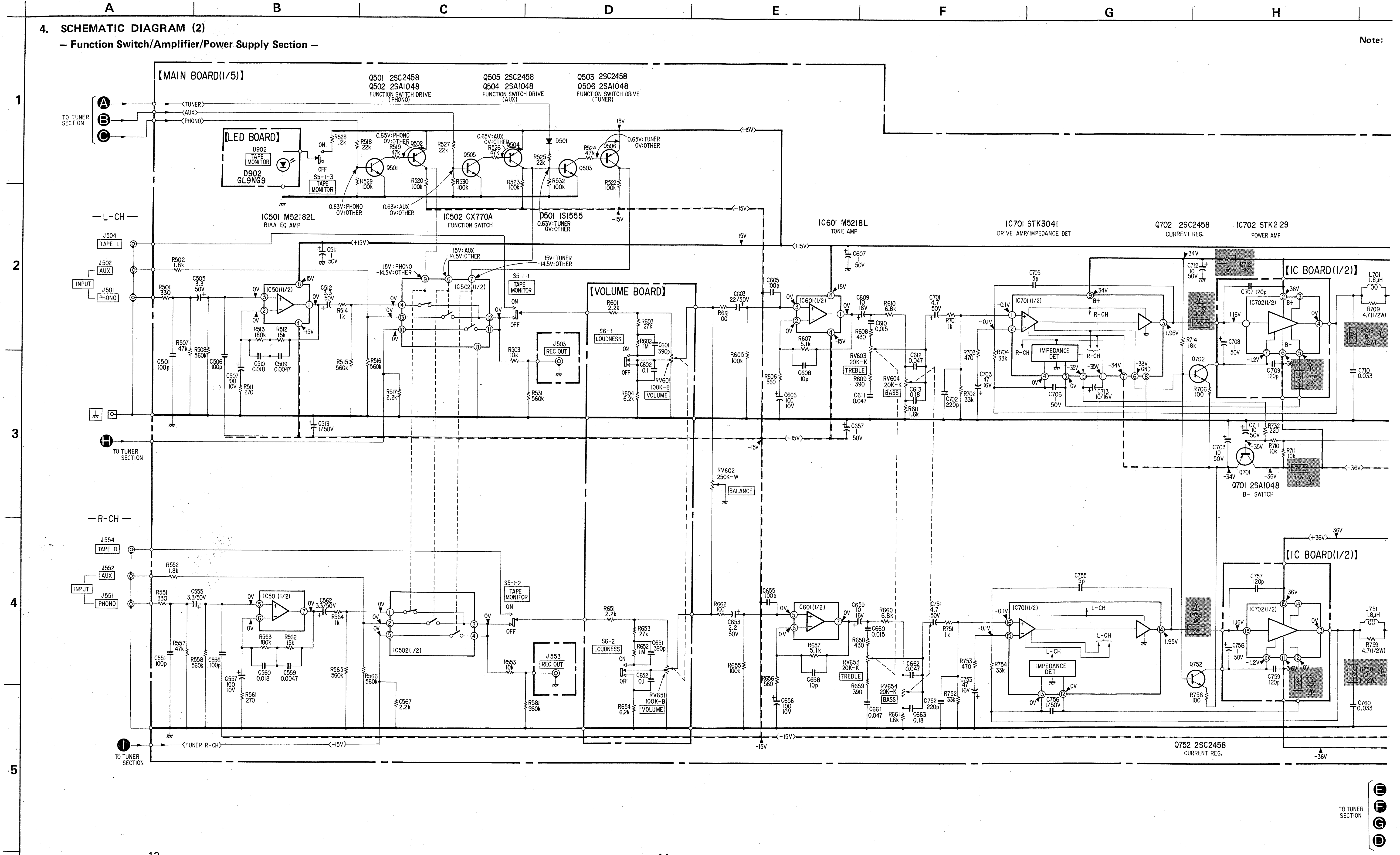
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltages are measured with a VOM (50kΩ/V).

4. SCHEMATIC DIAGRAM (2)

– Function Switch/Amplifier/Power Supply Section –

Note:


A
B
C
D
E
F
G
H
1
2
3
4
5
【MAIN BOARD(1/5)】
TO TUNER SECTION
TUNER
AUX
PHONO
【LED BOARD】
D902 TAPE MONITOR
D902 GL9NG9
S5-1-3 TAPE MONITOR
Q501 2SC2458
Q502 2SA1048
FUNCTION SWITCH DRIVE (PHONO)
Q505 2SC2458
Q504 2SA1048
FUNCTION SWITCH DRIVE (AUX)
Q503 2SC2458
Q506 2SA1048
FUNCTION SWITCH DRIVE (TUNER)
D501
0.65V:PHONO 0V:OTHER
0.65V:AUX 0V:OTHER
0.65V:TUNER 0V:OTHER
0.63V:PHONO 0V:OTHER
0.63V:AUX 0V:OTHER
IC501 M52182L RIAA EQ AMP
IC502 CX770A FUNCTION SWITCH
D501 1S1555
0.63V:TUNER 0V:OTHER
–L-CH–
J504 TAPE L
J502 AUX
J501 PHONO
INPUT
15V:PHONO -14.5V:OTHER
15V:AUX -14.5V:OTHER
15V:TUNER -14.5V:OTHER
S5-1-1 TAPE MONITOR
J503 REC OUT
【VOLUME BOARD】
S6-1 LOUDNESS
RV601 100K-B VOLUME
IC601 M5218L TONE AMP
RV603 20K-K TREBLE
RV604 20K-K BASS
IC701 STK3041 DRIVE AMP/IMPEDANCE DET
IMPEDANCE DET
Q702 2SC2458 CURRENT REG.
IC702 STK2129 POWER AMP
【IC BOARD(1/2)】
L701 1.8μH
R709 4.7(1/2W)
Q701 2SA1048 B- SWITCH
RV602 250K-W BALANCE
TO TUNER SECTION
–R-CH–
J554 TAPE R
J552 AUX
J551 PHONO
INPUT
S5-1-2 TAPE MONITOR
J553 REC OUT
S6-2 LOUDNESS
RV651 100K-B VOLUME
RV653 20K-K TREBLE
RV654 20K-K BASS
IC701(1/2)
IC702(1/2)
L751 1.8μH
R759 4.7(1/2W)
Q752 2SC2458 CURRENT REG.
TUNER R-CH
+15V
-15V
+36V
-36V
TO TUNER SECTION

Note:
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM.

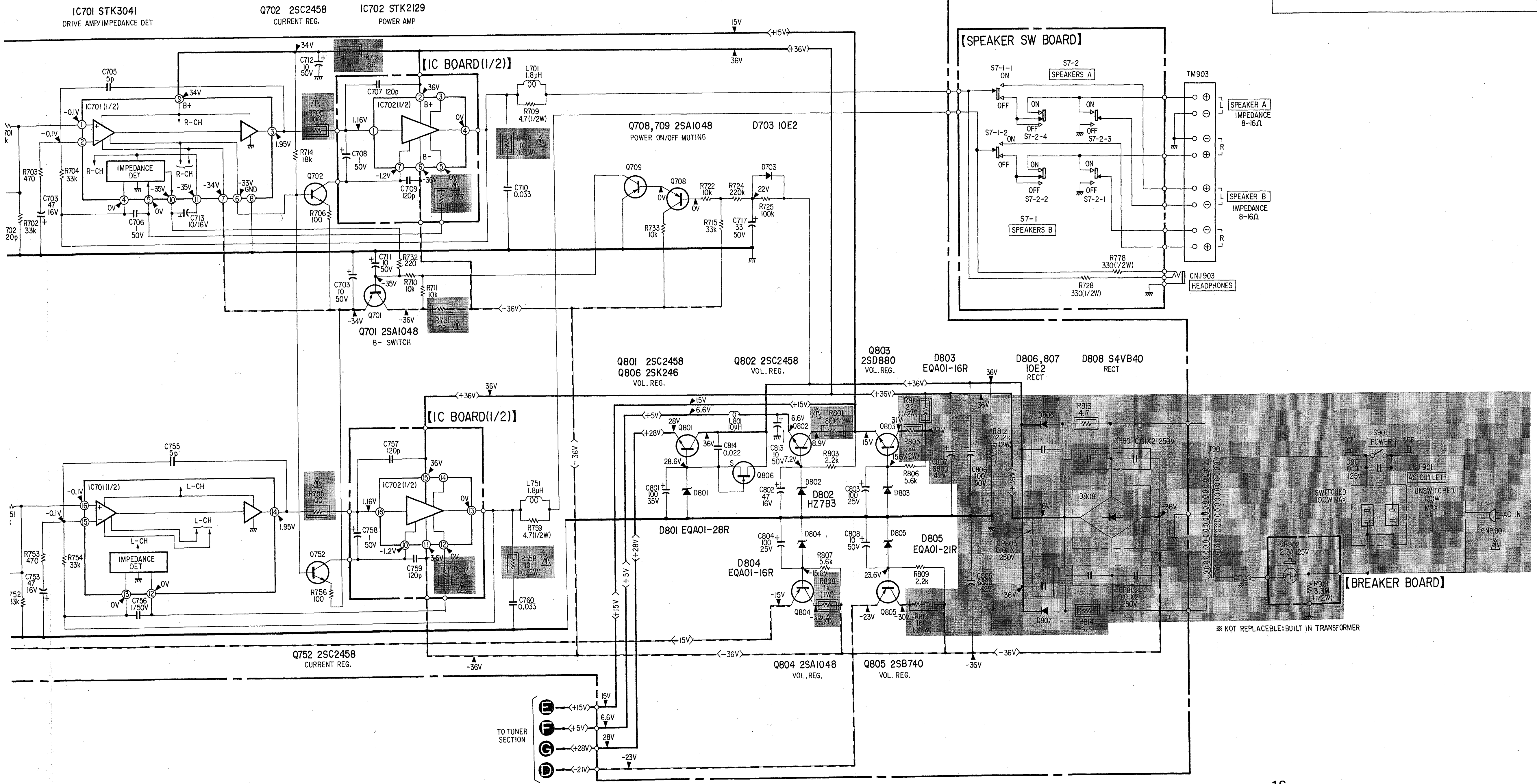
No mark : FM
( ) : AM

- Voltage variations may be noted due to normal production tolerances.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

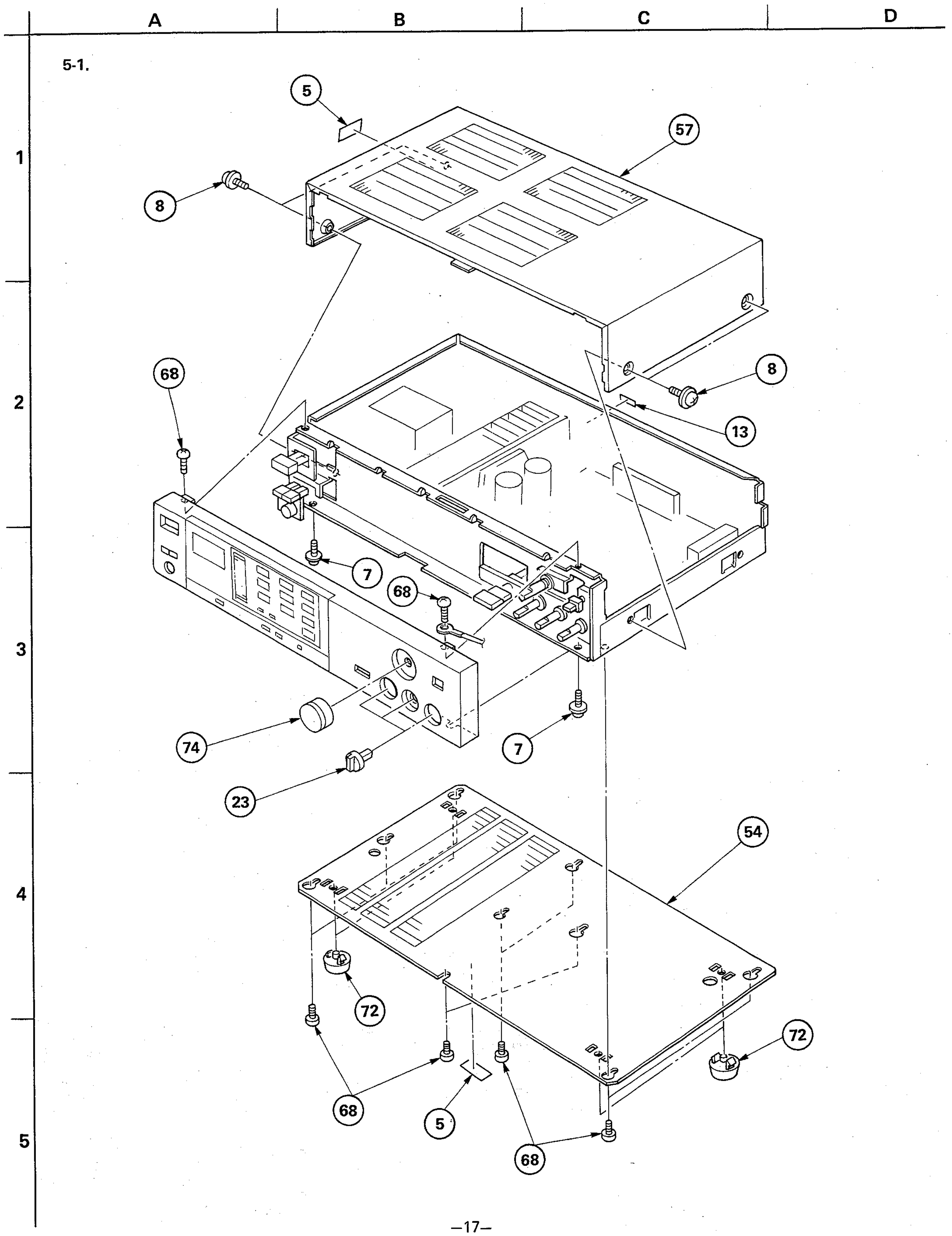
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Voltages are measured with a VOM (50kΩ/V).

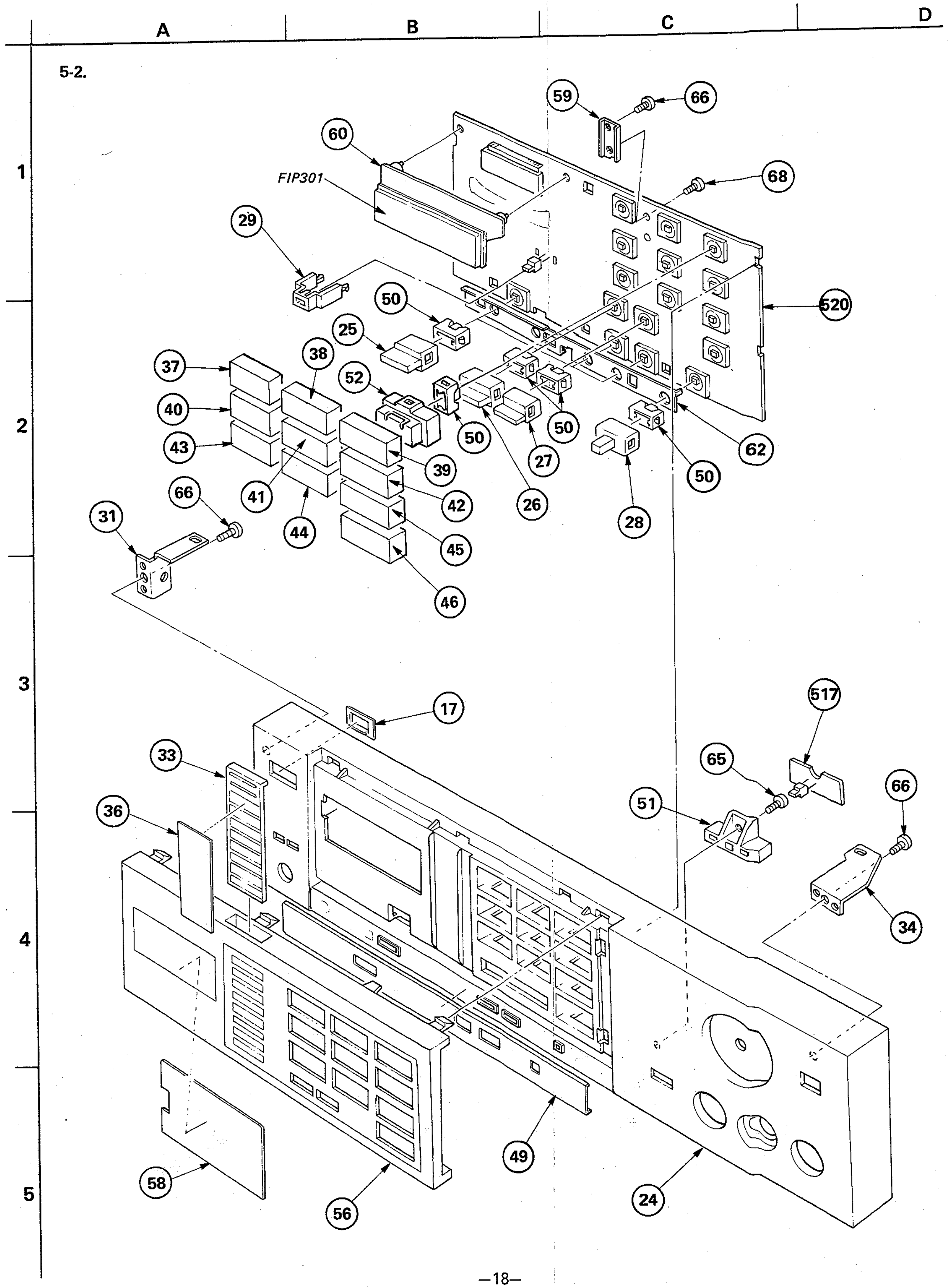

G
H
I
J
K
L
M
N
1
2
3
4
5
IC701 STK3041
DRIVE AMP/IMPEDANCE DET
Q702 2SC2458
CURRENT REG.
IC702 STK2129
POWER AMP
【IC BOARD(1/2)】
IMPEDANCE DET
R-CH
L-CH
L701 1.8μH
R709 4.7(1/2W)
Q708,709 2SA1048
POWER ON/OFF MUTING
D703 10E2
Q701 2SA1048
B- SWITCH
Q752 2SC2458
CURRENT REG.
L751 1.8μH
R759 4.7(1/2W)
【SPEAKER SW BOARD】
S7-1-1
S7-2
SPEAKERS A
S7-1
SPEAKERS B
TM903
SPEAKER A
IMPEDANCE 8-16Ω
SPEAKER B
IMPEDANCE 8-16Ω
R778 330(1/2W)
R728 330(1/2W)
CNJ903
HEADPHONES
Q801 2SC2458
Q806 2SK246
VOL. REG.
Q802 2SC2458
VOL. REG.
Q803 2SD880
VOL. REG.
D803 EQA01-16R
D806,807 10E2
RECT
D808 S4VB40
RECT
D801 EQA01-28R
D802 HZ7B3
D804 EQA01-16R
D805 EQA01-21R
Q804 2SA1048
VOL. REG.
Q805 2SB740
VOL. REG.
CP801 0.01X2 250V
CP802 0.01X2 250V
CP803 0.01X2 250V
T901
S901 POWER
CNJ901 AC OUTLET
SWITCHED 100W MAX
UNSWITCHED 100W MAX
AC IN
CNP901
CB902 2.5A 125V
R901 3.3M (1/2W)
【BREAKER BOARD】
※ NOT REPLACEBLE: BUILT IN TRANSFORMER
TO TUNER SECTION
E
F
G
D
+15V
+5V
+28V
-21V
+36V
-36V

5. EXPLODED VIEWS

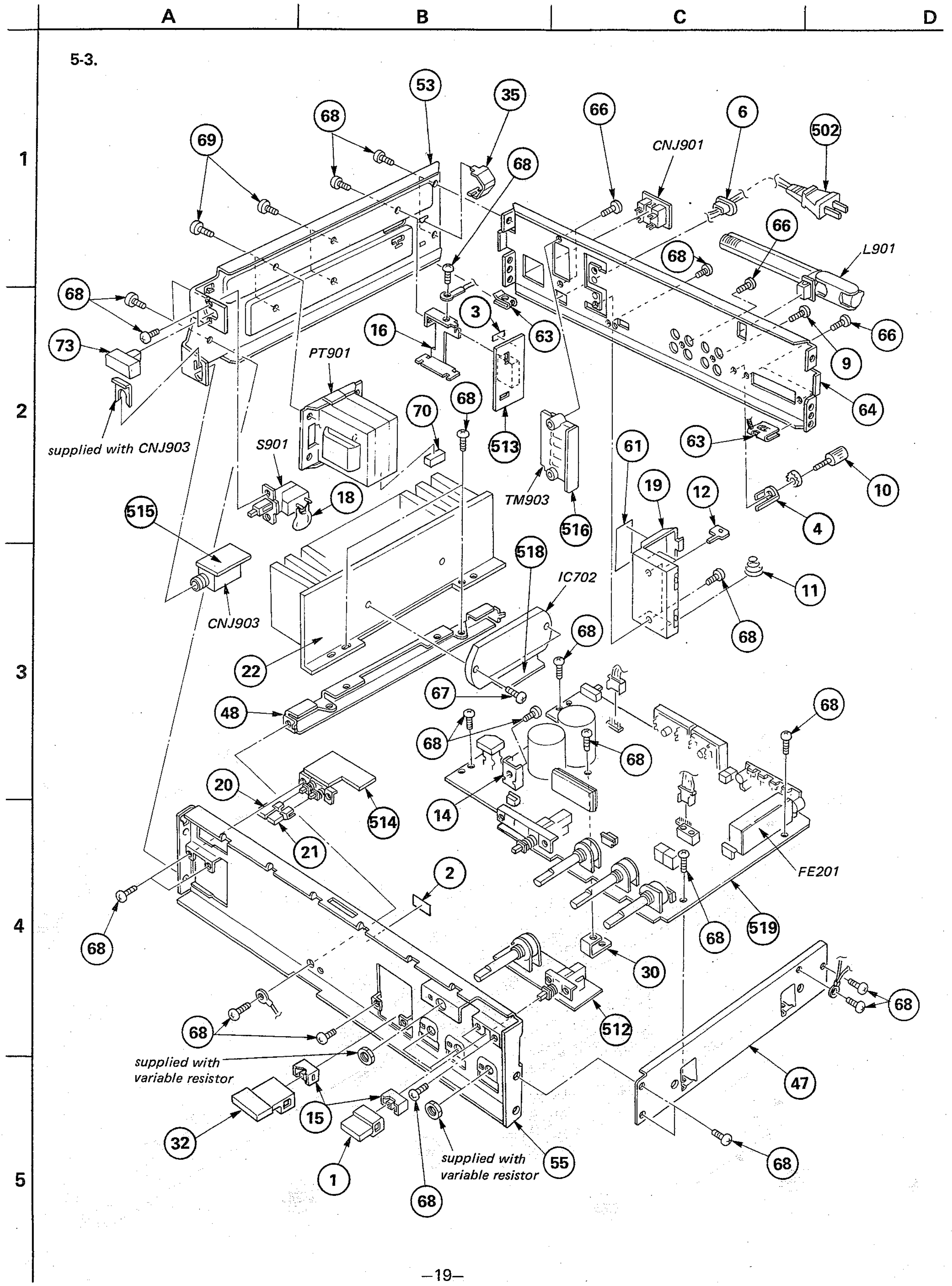
5-1.


A
B
C
D
1
2
3
4
5
5
57
8
8
13
68
7
68
7
74
23
54
72
72
68
5
68
68

5-2.


A
B
C
D
1
2
3
4
5
59
66
60
FIP301
68
29
520
50
25
38
37
52
40
43
39
50
27
50
26
62
50
28
66
31
41
42
44
45
46
17
517
33
65
66
36
51
34
49
58
56
24

5-3.



6. ELECTRICAL PARTS LIST

GENERAL SECTION

No.	Part No.	Description
1	2-363-012-00	KNOB (6X14), CORNER
2	3-701-030-00	LABEL, SERIAL NUMBER
3	♠;3-701-946-24	(Canadian)...LABEL, FUSE
4	3-701-993-00	SPACER, TERMINAL
5	3-703-079-21	LABEL, CAUTION (BACK)
6	3-703-244-00	BUSHING, CORD
7	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
8	3-703-354-11	SCREW (OS), CASE, CLAW
9	3-703-473-00	SCREW, TERMINAL
10	3-706-165-00	SCREW
11	3-883-424-00	SPRING
12	3-883-428-00	PLATE, TERMINAL (POSITIVE)
13	♠;4-844-449-00	LABEL
14	♠;4-857-562-00	HEAT SINK, TR
15	4-864-307-00	RING
16	♠;4-868-906-00	BRACKET, BREAKER
17	4-871-324-00	ESCUTCHEON, POWER KNOB
18	4-875-455-21	COVER (DIA. 20), CAPACITOR
19	4-875-530-00	CASE, BATTERY
20	4-876-722-01	KNOB (4X10), SQUARE
21	4-876-722-11	KNOB (4X10), SQUARE
22	♠;4-881-415-00	HEAT SINK (A)
23	4-881-520-01	KNOB (DIA. 18)
24	4-881-702-11	PANEL (A)
25	4-881-704-01	KNOB (5X16), SQUARE
26	4-881-704-11	KNOB (5X16), SQUARE
27	4-881-704-21	KNOB (5X16), SQUARE
28	4-881-705-01	KNOB (5X6), SQUARE
29	♠;4-881-706-00	HOLDER (B), LED
30	♠;4-881-707-00	BRACKET, PC BOARD
31	♠;4-881-708-00	BRACKET (LEFR), PANEL
32	4-881-709-00	KNOB (5X19), SQUARE
33	4-881-710-00	HOLDER, STATION
34	♠;4-881-713-00	BRACKET (RIGHT), PANEL
35	♠;4-881-714-00	PROTECTOR
36	4-881-718-11	LABEL, STATION
37	4-881-720-01	CAP, KNOB (12X25), SQUARE
38	4-881-720-11	CAP, KNOB (12X25), SQUARE
39	4-881-720-21	CAP, KNOB (12X25), SQUARE
40	4-881-720-31	CAP, KNOB (12X25), SQUARE
41	4-881-720-41	CAP, KNOB (12X25), SQUARE
42	4-881-720-51	CAP, KNOB (12X25), SQUARE
43	4-881-720-61	CAP, KNOB (12X25), SQUARE
44	4-881-720-71	CAP, KNOB (12X25), SQUARE
45	4-881-720-81	CAP, KNOB (12X25), SQUARE

GENERAL SECTION

No.	Part No.	Description
46	4-881-720-91	CAP, KNOB (12X25), SQUARE
47	♠;4-881-721-00	PLATE (RIGHT), SIDE
48	♠;4-881-722-00	BRACKET, HEAT SINK
49	4-881-724-31	PLATE, ORNAMENTAL
50	4-881-725-00	RING (TACT), FLEXIBLE
51	♠;4-881-727-00	HOLDER (A), LED
52	4-881-728-00	BASE, KNOB (12X25), SQUARE
53	♠;4-881-729-00	PLATE (LEFT), SIDE
54	♠;4-881-730-00	PLATE, BOTTOM
55	♠;4-881-731-00	PANEL (A), SUB
56	4-881-733-01	PANEL, 10 KEY
57	4-881-736-00	CASE
58	4-881-737-00	FILTER
59	♠;4-881-743-00	HOLDER, DISPLAY
60	4-881-744-00	HOLDER, FL TUBE
61	♠;4-881-747-00	LABEL, BATTERY
62	♠;4-881-751-00	CASE, SHIELD
63	♠;4-881-752-00	NUT, PLATE, SPECIAL
64	♠;4-881-901-01	(US).........PLATE, JACK
64	♠;4-881-901-12	(canadian)...PLATE, JACK
65	7-685-134-11	SCREW +P 2.6X8 TYPE2 NON-SLIT
66	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
67	7-685-649-11	SCREW +BVTP 3X14 TYPE2 N-S
68	7-685-871-01	SCREW +BVTT 3X6 (S)
69	7-685-880-01	SCREW +BVTT 4X6 (S)
70	9-911-846-XX	CUSHION
71	....	
72	X-4864-303-0	FOOT ASSY
73	X-4875-108-0	KNOB ASSY, POWER
74	X-4881-701-0	KNOB (DIA. 34) ASSY, R

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	1-501-184-00	ANTENNA, FEEDER
102	1-528-027-11	BATTERY, NEW SUPER (SUM-3)(NS)
103	3-701-630-00	BAG, POLYETHYLENE
104	3-703-390-01	(US)....INSTRUCTION
105	3-783-971-21	MANUAL, INSTRUCTION
106	3-783-971-31	(Canadian)...MANUAL, INSTRUCTION
107	3-795-424-11	(Canadian)...CARD, CONTROL
107	3-795-424-21	(US).........CARD, CONTROL
108	4-858-078-00	SHEET, PROTECTION
109	4-881-738-00	CUSHION, UPPER
110	4-881-739-00	CUSHION, LOWER
111	4-881-903-00	INDIVIDUAL CARTON
112	X-4881-702-0	LABEL ASSY (UC), STATION

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-508-994-00	PIN, CONNECTOR			
502	⚠.1-534-986-XX	(US).........CORD, POWER			
502	⚠.1-551-511-00	(Canadian)...CORD, POWER			
503	♠;1-535-115-00	TERMINAL			
504	♠;1-535-116-00	TERMINAL			
505	♠;1-535-117-00	TERMINAL			
506	♠;1-535-137-00	BASE POST 14MM (10MM PITCH)			
507	♠;1-560-060-00	PIN, CONNECTOR 2P			
508	♠;1-560-282-00	CONNECTOR PIN 7P			
509	♠;1-561-439-00	SOCKET, CONNECTOR 3P			
510	♠;1-561-440-00	SOCKET, CONNECTOR 4P			
511	♠;1-561-443-00	SOCKET, CONNECTOR 7P			
512	♠;1-607-502-00	PC BOARD, VOLUME			
513	♠;1-607-503-00	PC BOARD, BREAKER			
514	♠;1-607-504-00	PC BOARD, SPEAKER SW			
515	♠;1-607-505-00	PC BOARD, HEADPHONE			
516	♠;1-607-506-00	PC BOARD, SPEAKER TERMINAL			
517	♠;1-607-507-00	PC BOARD, LED			
518	♠;1-607-508-00	PC BOARD, IC			
519	♠;A-4409-632-A	MOUNTED PCB, MAIN			
520	♠;A-4472-096-A	MOUNTED PCB, DISPLAY			
C601	1-161-318-00	CERAMIC	390PF	10%	50V
C651	1-161-318-00	CERAMIC	390PF	10%	50V
C717	1-123-511-00	ELECT	33MF	20%	50V
C805	⚠.1-124-030-00	ELECT	6800MF	20%	42V
C806	⚠.1-123-513-00	ELECT	100MF	20%	50V
C807	⚠.1-124-030-00	ELECT	6800MF	20%	42V
C901	⚠.1-161-749-00	CERAMIC	10000PF		125V
CB902	⚠1-532-521-11	BREAKER, CIRCUIT			
CF201	1-527-307-XX	FILTER, CERAMIC			
CF203	1-527-307-XX	FILTER, CERAMIC			
CF401	1-527-599-00	FILTER, MECHANICAL			
CNJ901	⚠1-561-161-00	OUTLET, AC (2-GANG)			
CNJ903	1-507-669-00	JACK			
CP801	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CP802	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CP803	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CT401	1-141-180-00	CAP, TRIMMER			
CT402	1-141-180-00	CAP, TRIMMER			
D201	8-719-815-55	DIODE 1S1555			
D301	8-719-815-55	DIODE 1S1555			
D302	8-719-931-25	DIODE EQB01-25			

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D304	8-719-815-55	DIODE 1S1555
D305	8-719-912-00	DIODE MV-12N
D306	8-719-815-55	DIODE 1S1555
D307	8-719-815-55	DIODE 1S1555
D308	8-719-815-55	DIODE 1S1555
D309	8-719-815-55	DIODE 1S1555
D310	8-719-815-55	DIODE 1S1555
D311	8-719-815-55	DIODE 1S1555
D312	8-719-815-55	DIODE 1S1555
D313	8-719-815-55	DIODE 1S1555
D314	8-719-815-55	DIODE 1S1555
D316	8-719-909-18	DIODE GL-9PR9
D401	8-719-912-27	DIODE KV1226
D402	8-719-912-27	DIODE KV1226
D403	8-719-815-55	DIODE 1S1555
D404	8-719-912-00	DIODE MV-12N
D405	8-719-912-00	DIODE MV-12N
D406	8-719-815-55	DIODE 1S1555
D501	8-719-815-55	DIODE 1S1555
D703	8-719-200-02	DIODE 10E-2
D801	8-719-931-28	DIODE EQB01-28
D802	8-719-100-43	DIODE RD7.5E-B1
D803	8-719-931-16	DIODE EQB01-16
D804	8-719-931-16	DIODE EQB01-16
D805	8-719-931-21	DIODE EQB01-21
D806 ⚠	8-719-200-02	DIODE 10E-2
D807 ⚠	8-719-200-02	DIODE 10E-2
D808 ⚠	8-719-504-40	DIODE S4VB40
D809	8-719-200-02	DIODE 10E-2
D902	8-719-909-19	DIODE GL-9NG9
FE201	A-4344-029-A	FRONT END
FIP301	1-519-256-00	INDICATOR TUBE, FLUORESCENT
IC201	8-759-812-35	IC LA1235
IC202	8-759-833-90	IC LA3390
IC301	8-759-200-66	IC TCP4621BP-6502
IC302	8-759-617-78	IC CX-778A
IC401	8-759-812-45	IC LA1245
IC501	8-759-600-02	IC M5218L
IC502	8-759-307-70	IC CX-770A
IC601	8-759-600-02	IC M5218L
IC701	8-749-930-41	IC STK-3041
IC702	8-749-921-29	IC STK-2129
J501	1-507-788-00	JACK, PIN 4P
J502	1-507-788-00	JACK, PIN 4P
J503	1-507-788-00	JACK, PIN 4P

ELECTRICAL PARTS

Ref.No.	Part No.	Description
J504	1-507-788-00	JACK, PIN 4P
J551	1-507-788-00	JACK, PIN 4P
J552	1-507-788-00	JACK, PIN 4P
J553	1-507-788-00	JACK, PIN 4P
J554	1-507-788-00	JACK, PIN 4P
L301	1-408-183-00	MICRO INDUCTOR 10UH
L302	1-408-183-00	MICRO INDUCTOR 10UH
L401	1-408-202-00	MICRO INDUCTOR 390UH
L402	1-408-195-00	MICRO INDUCTOR 100UH
L701	♠;1-420-872-00	COIL, AIRE CORE
L751	♠;1-420-872-00	COIL, AIRE CORE
L801	1-408-183-00	MICRO INDUCTOR 10UH
L901	1-401-887-41	ANTENNA, FERRITE-ROD (MW)
PT901 ⚠	1-447-302-00	TRANSFORMER, POWER
Q201	8-729-671-14	TRANSISTOR 2SC710-14
Q202	8-729-671-14	TRANSISTOR 2SC710-14
Q205	8-729-245-83	TRANSISTOR 2SC2458
Q206	8-729-245-83	TRANSISTOR 2SC2458
Q207	8-729-245-83	TRANSISTOR 2SC2458
Q301	8-729-245-83	TRANSISTOR 2SC2458
Q302	8-729-204-82	TRANSISTOR 2SA1048
Q303	8-729-204-82	TRANSISTOR 2SA1048
Q304	8-729-204-82	TRANSISTOR 2SA1048
Q305	8-729-245-83	TRANSISTOR 2SC2458
Q306	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q307	8-729-665-47	TRANSISTOR 2SC1362
Q401	8-729-245-83	TRANSISTOR 2SC2458
Q402	8-729-245-83	TRANSISTOR 2SC2458
Q403	8-729-204-82	TRANSISTOR 2SA1048
Q404	8-729-245-83	TRANSISTOR 2SC2458
Q405	8-729-245-83	TRANSISTOR 2SC2458
Q406	8-729-204-82	TRANSISTOR 2SA1048
Q407	8-729-245-83	TRANSISTOR 2SC2458
Q408	8-729-245-83	TRANSISTOR 2SC2458
Q409	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q501	8-729-245-83	TRANSISTOR 2SC2458
Q502	8-729-204-82	TRANSISTOR 2SA1048
Q503	8-729-245-83	TRANSISTOR 2SC2458
Q504	8-729-204-82	TRANSISTOR 2SA1048
Q505	8-729-245-83	TRANSISTOR 2SC2458
Q506	8-729-204-82	TRANSISTOR 2SA1048
Q701	8-729-204-82	TRANSISTOR 2SA1048
Q702	8-729-245-83	TRANSISTOR 2SC2458
Q708	8-729-204-82	TRANSISTOR 2SA1048

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:µF, PF:µµF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : µH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC, UPD···: µPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
Q709	8-729-204-82	TRANSISTOR 2SA1048				
Q752	8-729-245-83	TRANSISTOR 2SC2458				
Q801	8-729-245-83	TRANSISTOR 2SC2458				
Q802	8-729-245-83	TRANSISTOR 2SC2458				
Q803	8-729-288-02	TRANSISTOR 2SD880				
Q804	8-729-204-82	TRANSISTOR 2SA1048				
Q805	8-729-374-02	TRANSISTOR 2SB740				
Q806	8-729-224-61	TRANSISTOR 2SK246				
R201	1-244-945-00	CARBON	1M	5%	1/2W	
R212	⚠.1-247-109-00	CARBON	120	5%	1/4W	F
R220	⚠.1-247-109-00	CARBON	120	5%	1/4W	F
R241	⚠.1-247-109-00	CARBON	120	5%	1/4W	F
R301	1-244-857-00	CARBON	220	5%	1/2W	
R307	⚠.1-213-138-00	METAL	390	5%	1W	F
R419	⚠.1-247-109-00	CARBON	120	5%	1/4W	F
R424	⚠.1-247-115-00	CARBON	220	5%	1/4W	F
R705	⚠.1-247-107-00	CARBON	100	5%	1/4W	F
R707	⚠.1-247-115-00	CARBON	220	5%	1/4W	F
R708	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R709	1-244-817-00	CARBON	4.7	5%	1/2W	
R712	⚠.1-247-101-00	CARBON	56	5%	1/4W	F
R728	1-244-861-00	CARBON	330	5%	1/2W	
R731	⚠.1-247-091-00	CARBON	22	5%	1/4W	F
R755	⚠.1-247-107-00	CARBON	100	5%	1/4W	F
R757	⚠.1-247-115-00	CARBON	220	5%	1/4W	F
R758	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R759	1-244-817-00	CARBON	4.7	5%	1/2W	
R778	1-244-861-00	CARBON	330	5%	1/2W	
R801	⚠.1-247-222-00	CARBON	180	5%	1/2W	F
R805	⚠.1-206-472-00	METAL	24	5%	2W	F
R808	⚠.1-213-143-00	METAL	1K	5%	1W	F
R810	⚠.1-212-987-00	FUSIBLE	160	5%	1/2W	F
R811	⚠.1-247-200-00	CARBON	22	5%	1/2W	F
R812	⚠.1-206-672-00	METAL	2.2K	5%	2W	F
R813	⚠.1-247-079-00	CARBON	4.7	5%	1/4W	F
R814	⚠.1-247-079-00	CARBON	4.7	5%	1/4W	F
R901	⚠.1-202-725-00	COMPOSITION	3.3M	10%	1/2W	
RT201	1-226-235-00	RES, ADJ, CARBON 5K				
RT202	1-226-236-00	RES, ADJ, CARBON 10K				
RT203	1-226-238-00	RES, ADJ, CARBON 50K				
RV601	1-228-612-00	RES, VAR, CARBON 100K/100K				
RV602	1-228-610-00	RES, VAR, CARBON 250K				
RV603	1-228-611-00	RES, VAR, CARBON 20K/20K				

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV604	1-228-611-00	RES, VAR, CARBON 20K/20K
RV651	1-228-612-00	RES, VAR, CARBON 100K/100K
RV653	1-228-611-00	RES, VAR, CARBON 20K/20K
RV654	1-228-611-00	RES, VAR, CARBON 20K/20K
S5	1-554-119-00	SWITCH, PUSH (1 KEY)
S6	1-553-884-00	SWITCH, PUCH (1 KEY)
S7	1-553-761-00	SWITCH, PUSH (2 KEY)
S301	1-552-412-00	SWITCH, KEY BOARD
S302	1-552-412-00	SWITCH, KEY BOARD
S304	1-552-412-00	SWITCH, KEY BOARD
S305	1-552-412-00	SWITCH, KEY BOARD
S306	1-552-412-00	SWITCH, KEY BOARD
S307	1-552-412-00	SWITCH, KEY BOARD
S308	1-552-412-00	SWITCH, KEY BOARD
S309	1-552-412-00	SWITCH, KEY BOARD
S310	1-552-412-00	SWITCH, KEY BOARD
S311	1-552-412-00	SWITCH, KEY BOARD
S312	1-552-412-00	SWITCH, KEY BOARD
S313	1-552-412-00	SWITCH, KEY BOARD
S314	1-552-412-00	SWITCH, KEY BOARD
S315	1-552-412-00	SWITCH, KEY BOARD
S316	1-552-412-00	SWITCH, KEY BOARD
S318	1-552-412-00	SWITCH, KEY BOARD
S401	1-552-370-00	SWITCH, SLIDE
S901	⚠.1-553-319-00	SWITCH, PUSH (AC POWER)
T201	1-404-338-00	TRANSFORMER, DISCRIMINATOR (FM)
T202	1-404-339-00	TRANSFORMER, DISCRIMINATOR
T401	1-405-927-00	COIL, MW OSC
T403	1-409-348-00	COIL, MECHANICAL FILTER
TM901	1-536-708-00	TERMINAL BOARD, PUSH 4P
TM903	1-536-706-00	TERMINAL BOARD (SP)
XT301	1-527-731-00	OSCILLATOR, CRYSTAL

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in µF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:µF, PF:µµF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : µH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC,
UPD···: µPD···

ELECTROLYTIC CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

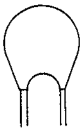
RATING →: Use the high voltage rated one.

CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

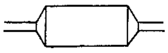
	RATING										
CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



	RATING			→: Use the high voltage rated one.			
CAP. (µF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



	RATING					
CAP. (µF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

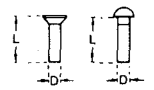
Screw: – P 3 x 10

L: *Length in mm*

D: *Diameter in mm*

Type of head

Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

TABLE OF CONTENTS

(page)
Specifications 1
Handling precautions for MOS ICs 4

SECTION 1 OUTLINE

Features 6
Precautions 6
Operating instructions
  System connections 7
  Location and function of controls 8
  Battery installation 10
  Preparation 10
  Broadcast reception 11
  Other operating instructions 13
Circuit description
  IC301 (microcomputer) 14
  Fluorescent indicator tube (FL Tube) 15
  IC401 (CX778A) 18
Block diagram 19

SECTION 2 DISASSEMBLY

Removal 21

SECTION 3 ADJUSTMENTS

AM section 23
FM section 25

SECTION 4 DIAGRAMS

Schematic diagram
  Tuner/Indicator section 29
  Function Switch/Amplifier/Power Supply section 33
Mounting diagram 37
Semiconductor lead layouts 41

SECTION 5 EXPLODED VIEWS AND PARTS LIST

Exploded views 42
Parts list 45

Trouble checks 52

Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
(The ICs should be stored in that manner until mounted on the circuit board.)

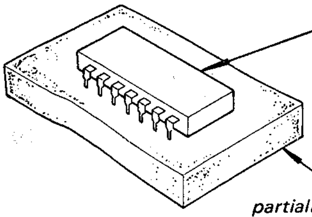

IC
partially conductive unrethane-polyester cushion

Fig. A

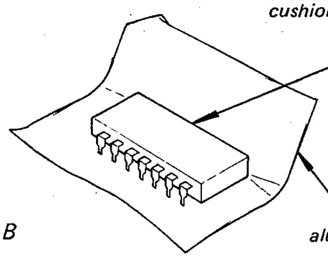

IC
aluminum foil

Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

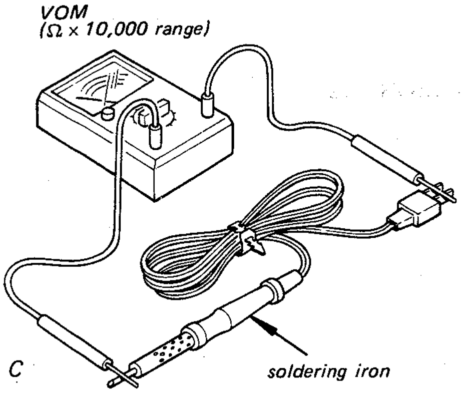

VOM
(Ω x 10,000 range)
soldering iron

Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.

4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

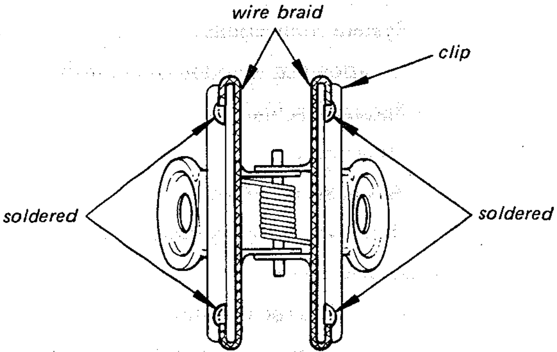

wire braid
clip
soldered
soldered

Fig. D Make sure that there is no solder on the inside.

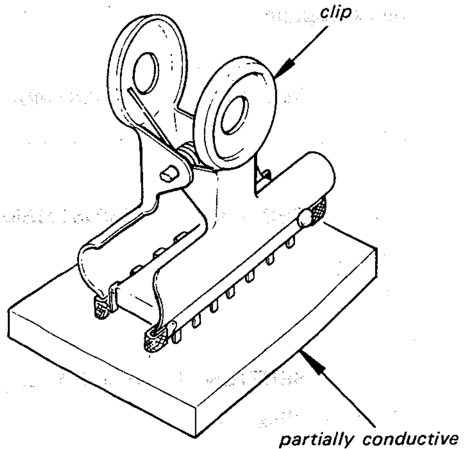

clip
partially conductive urethane-polyester cushion or aluminum foil

Fig. E

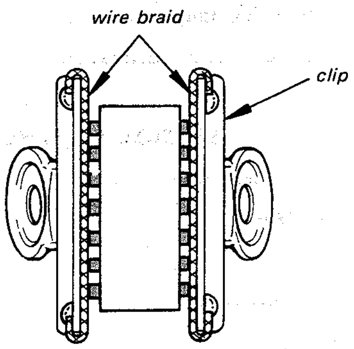

wire braid
clip

Fig. F Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

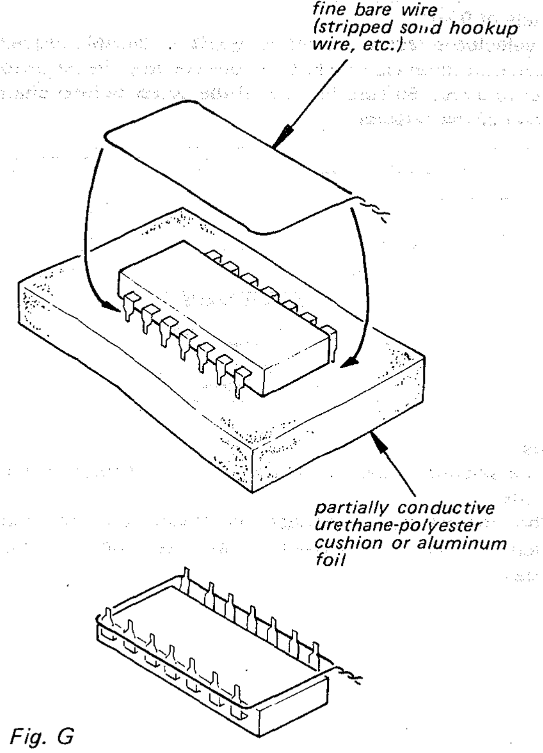

fine bare wire
(stripped sond hookup wire, etc.)
partially conductive urethane-polyester cushion or aluminum foil

Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

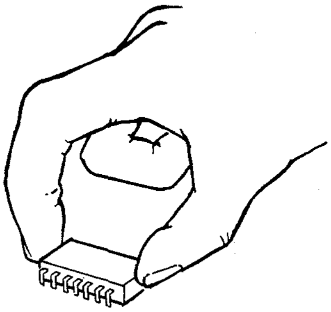


Fig. H

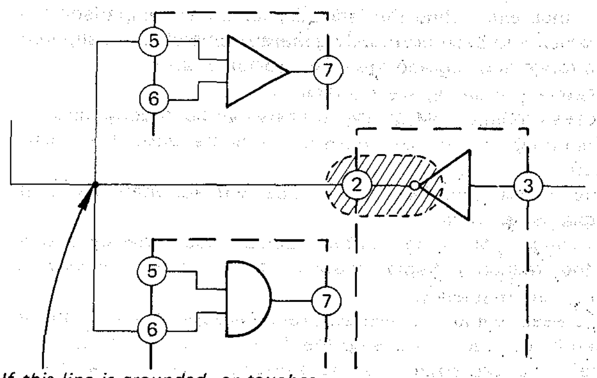
5. Method of Mounting
Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B– voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:



If this line is grounded, or touches B+ or B– bus . . . , the output stage of this IC will be destroyed.

Fig. I

SECTION 1
OUTLINE

:ATURES

e STR-VX22 with its Direct Access System, makes station selec-
n easier than ever. The STR-VX22 also employs the quartz-locked
jital synthesizer system in a separate state-of-the-art tuner sec-
n and provides medium-high power output for your home audio
stem from its amplifier section.

nplifier section

Tone control stages, which employ IC, are carefully designed to
ıprove stereo separation and signal-to-noise ratio.
Protection and power muting circuits are included to avoid an-
ying thump noise during power switching.

ıner section

The quartz-locked digital synthesizer system with a sophisti-
ated Phase Locked Loop (PLL) circuit allows extremely precise
ning of FM and AM stations with an electronic digital readout on
e frequency display.
new IC recently developed by Sony allows the high comparison
equency thus eliminating the tendency for a low comparison fre-
uency, which had been previously generally employed, to slip into
e audio range and degrade the signal-to-noise ratio.
Four methods of tuning are available:
irect access tuning: FM or AM stations can be directly tuned in
by inputting the station frequency with the DIRECT TUNING
buttons.
utomatic tuning: the FM band is scanned automatically until
a signal is received.
lanual tuning: AM tuning can be accomplished either by chang-
ing the frequency display reading step by step or slowly to
monitor the frequency.
lemory preset tuning: a desired pre-memorized station can be
instantly received by pressing the PRESET TUNING button.
The pre-memorized stations are retained in memory by two back-
p batteries when the power is turned off. These back-up batteries
lso allow the last station tuned in to be held in memory.

PRECAUTIONS

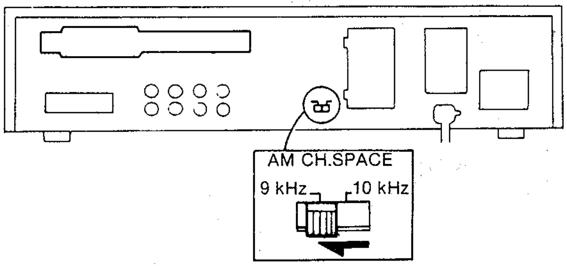
Note about the AM channel plan selector

This receiver has a two-position AM channel plan selector on the rear. To tune in AM stations correctly, the selector should be correctly set according to the AM frequency allocation system of your country.

10 kHz: for countries where the frequencies are allocated at intervals of 10 kHz, for example, the USA and Canada.

9 kHz: for countries where the frequencies are allocated at intervals of 9 kHz.

This selector is factory preset at 10 kHz. If the AM frequencies are allocated at intervals of 9 kHz in your country, the selector should be set to 9 kHz. **Be sure to turn off the power before changing the position of the selector.**



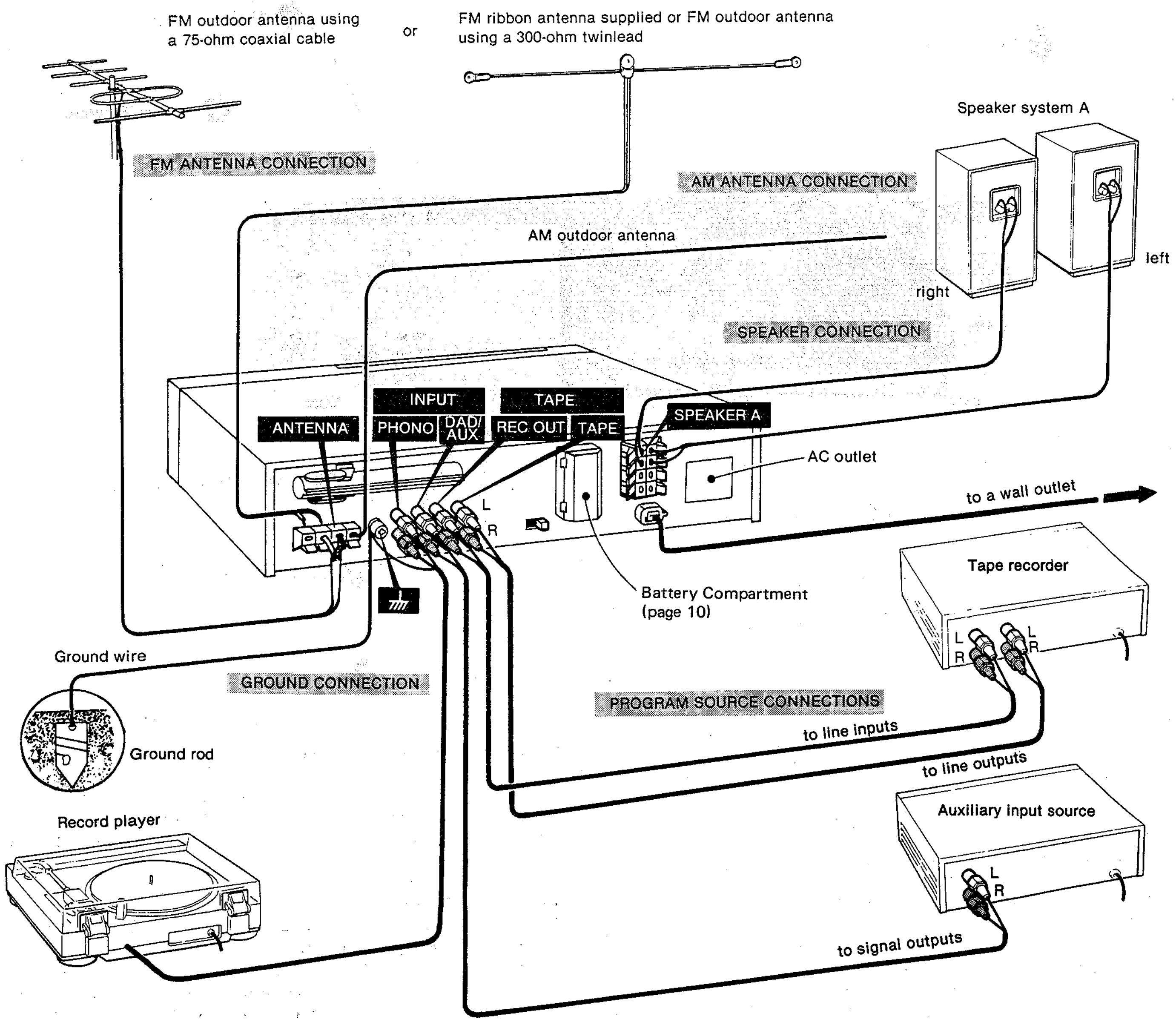
Notes

- If the selector is set incorrectly, you cannot tune in AM stations properly.
- When the selector is changed, the preset frequency and the last station memory will be erased. In this case, memorize the frequency again.

1-1. OPERATING INSTRUCTIONS

SYSTEM CONNECTIONS

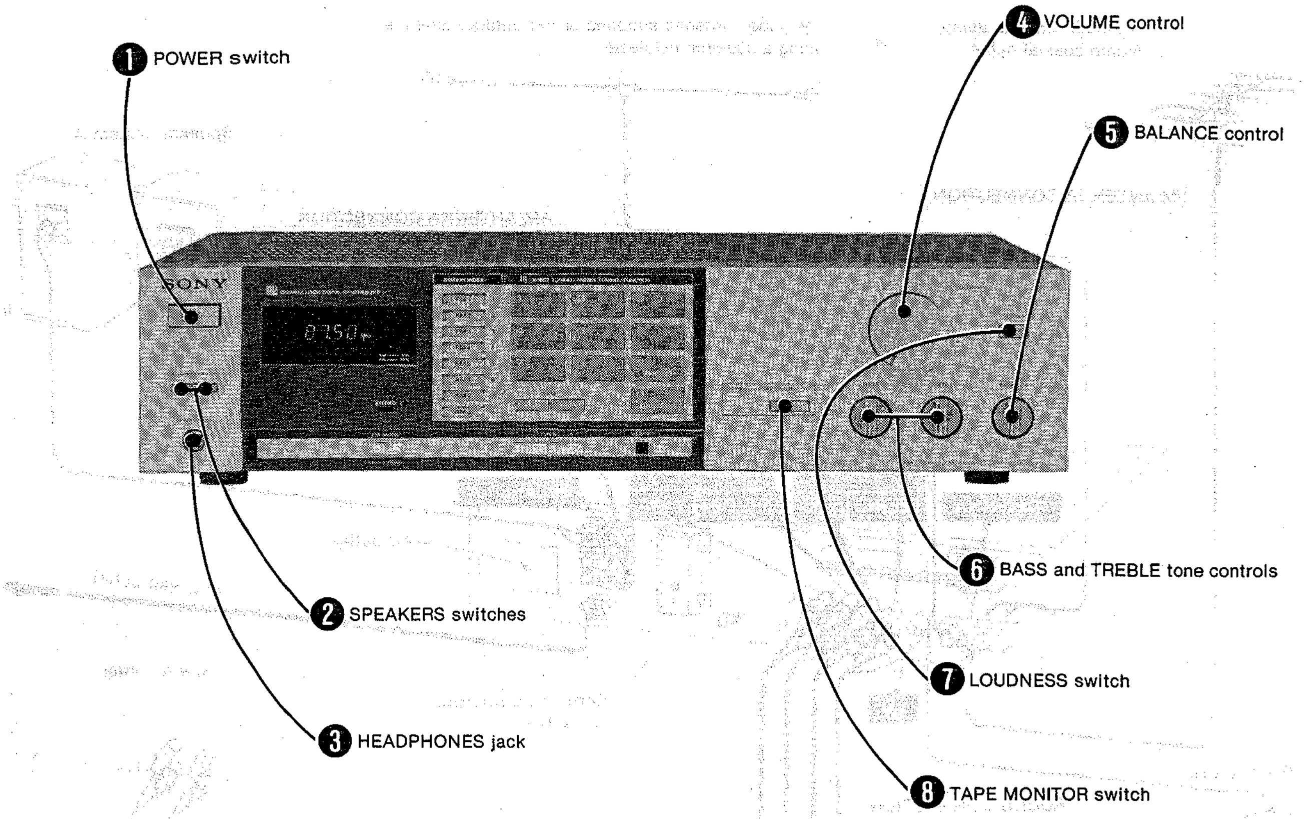
CONNECTION DIAGRAM


FM outdoor antenna using a 75-ohm coaxial cable
or
FM ribbon antenna supplied or FM outdoor antenna using a 300-ohm twinlead
Speaker system A
FM ANTENNA CONNECTION
AM ANTENNA CONNECTION
AM outdoor antenna
right
left
SPEAKER CONNECTION
INFUT
TAPE
ANTENNA
PHONO
DAD/ AUX
REC OUT
TAPE
SPEAKER A
AC outlet
to a wall outlet
L
R
Tape recorder
L
R
L
R
Battery Compartment (page 10)
Ground wire
GROUND CONNECTION
PROGRAM SOURCE CONNECTIONS
to line inputs
to line outputs
Ground rod
Auxiliary input source
L
R
Record player
to signal outputs

LOCATION AND FUNCTION OF CONTROLS

Before plugging in or attempting to operate this receiver,
it is suggested that you familiarize yourself with all its switches and the purpose of each.
Each number in the photo is keyed to the descriptive text.

Amplifier section



❶ POWER switch
Depress to turn on the power. To turn the power off, press the switch again.

❷ SPEAKERS switches
To drive speaker system A, depress the A switch.
To dirve speaker system B, depress the B switch.
To drive both speaker systems A and B, depress both A and B switches.

❸ HEADPHONES jack
Accepts any low or high impedance stereo headphones.
For headphone monitoring only, keep the SPEAKERS switches OFF.

❹ VOLUME control
Regulates the overall sound level.
Clockwise rotation of the VOLUME control increases the sound level and counterclockwise rotation decreases it.
Be sure to lower the volume whenever you turn the receiver on or off, or make system connections.

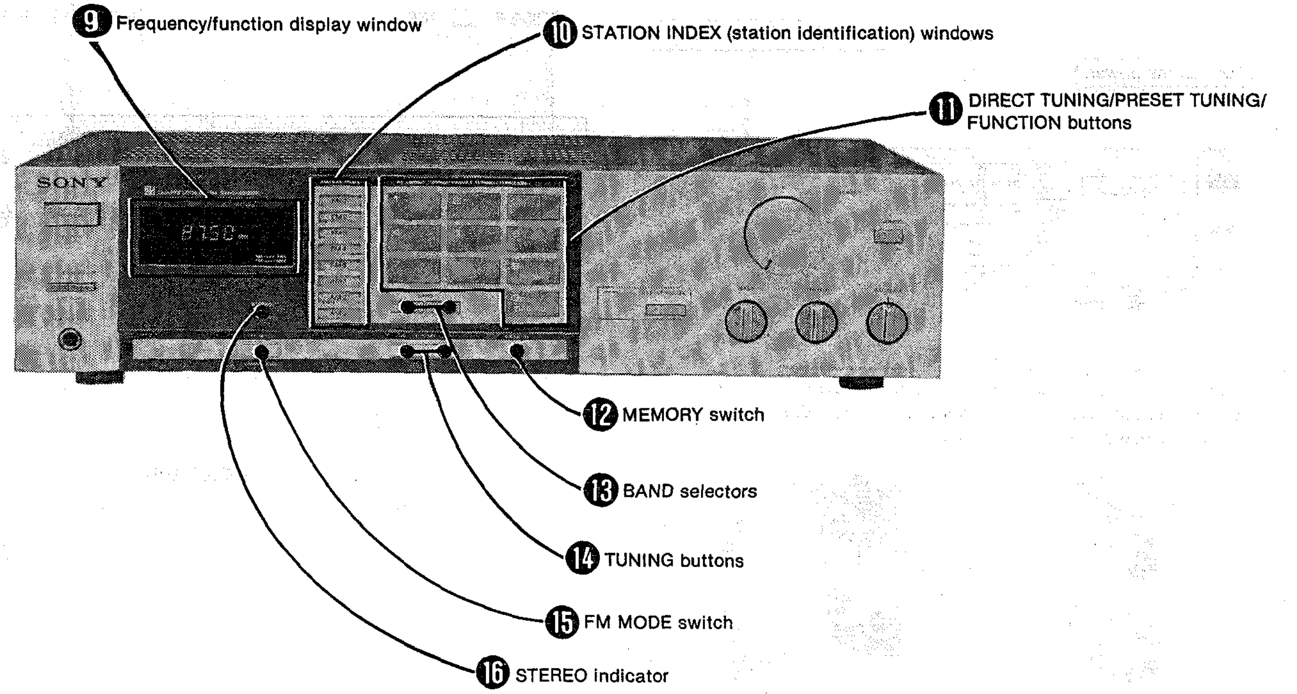
❺ BALANCE control
Governs the amount of sound coming from each paired speaker to get optimum stereo effect. When you turn the BALANCE control to the right, the left channel volume is decreased, and vice versa.

❻ BASS and TREBLE tone controls
These knobs control the prominence of bass and treble response. Clockwise rotation increases response; counterclockwise rotation decreases it. Normally keep these at the "0" position.
Adjust the tone to the acoustic condition of the listening room or to your preference.

❼ LOUDNESS switch
Normally keep the switch released (⊓ OFF). When listening to program sources at a low VOLUME control setting, depress the switch (⊔ ON).
This loudness control compensates for the human ear's decreased response to very low and high frequency sound at low volume levels, and provides an apparently uniform response. The effect of this control gradually decreases as the volume is increased by the VOLUME control.

❽ TAPE MONITOR switch
To listen to a taped program, depress the switch. The indication above the switch will light up, indicating that a playback .output from the tape recorder connected to the TAPE jacks can be heard.

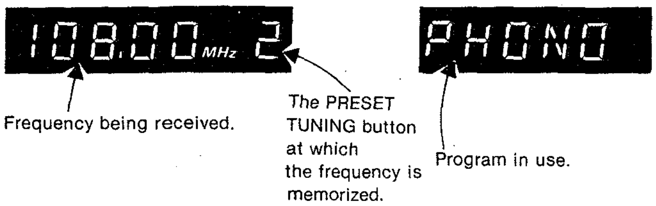
Tuner section


⑨ Frequency/function display window
⑩ STATION INDEX (station identification) windows
⑪ DIRECT TUNING/PRESET TUNING/ FUNCTION buttons
SONY
⑫ MEMORY switch
⑬ BAND selectors
⑭ TUNING buttons
⑮ FM MODE switch
⑯ STEREO indicator

⑨ Frequency/function display window

During broadcast reception

During reproduction of record source or auxiliary input source


108.00 MHz 2
PHONO
Frequency being received.
The PRESET TUNING button at which the frequency is memorized.
Program in use.

⑩ STATION INDEX (station identification) windows
Station labels (supplied) identifying pre-memorized stations can be placed in these windows.

⑪ DIRECT TUNING/PRESET TUNING/FUNCTION buttons
Press the button according to the following desired purposes. The pressed figures will be displayed on the frequency/function display window.

Direct access tuning (the 1 to 0 buttons serve as DIRECT TUNING buttons)
To tune in the frequency directly, press the BAND selector and the buttons.

Memory tuning (the 1 to 8 buttons serve as PRESET TUNING buttons)
To call up a pre-memorized station, press the appropriate button.

Reproduction of record and auxiliary sources (the 9 and 0 buttons serve as FUNCTION buttons)
Press to select between PHONO (9) or DAD/AUX (0).

⑫ MEMORY switch
Press to operate memory circuit. The "0" indicator will appear on the frequency/function display window for a few seconds indicating that the memory circuit is standing by.

⑬ Band selectors
Press the appropriate selector to select the desired band: FM or AM.

⑭ TUNING buttons
Press either the " + " or "–" button to change the frequncy: Press the "–" button to go to a lower frequency and the " + " button to go to a higher.

During FM reception:
Press to start the automatic frequency scanning (in 0.05 MHz steps).

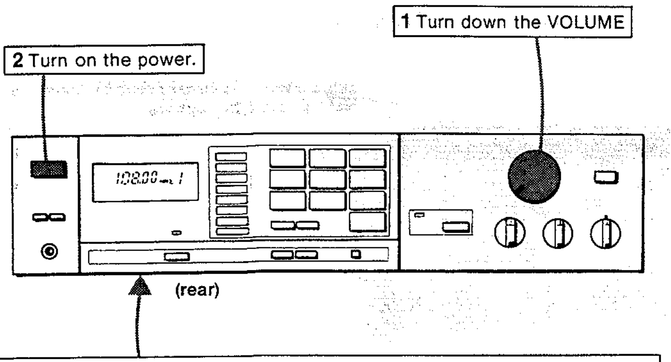
During AM reception:
Press and keep the button depressed to change the frequency continuously in 10 kHz steps (or 9 kHz steps). To change the frequency rapidly, press and release the button immediately.

⑮ FM MODE switch
During FM reception, when a stereo signal of sufficient strength is received, the receiver operates in the stereo mode. (The STEREO indicator will illuminate.)
When you want to tune in a very weak FM station, or when an FM program is too noisy, press this switch. (The STEREO indicator illumination will go out.) Press it again to return to the stereo mode. The mode will automatically return to the stereo mode when the frequency is changed.

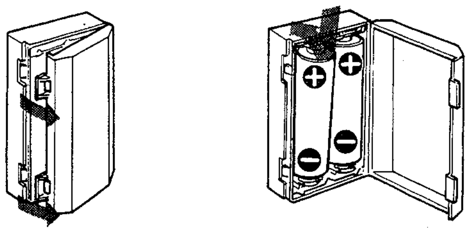
⑯ STEREO indicator
This indicator will light when an FM stereo program of sufficient signal strength is tuned in.

ATTERY INSTALLATION

o retain the frequencies memorized on the PRESET TUNING but-
ons while the receiver is turned off, install two batteries in the bat-
ry compartment at the rear as follows.


1 Turn down the VOLUME
2 Turn on the power.
108.00
(rear)

3 Open the battery compartment lid, install two batteries, size AA (IEC designation R6), with the correct polarity as indicated inside the compartment, then close the lid.



The flat sides of the batteries press against the springs.

attery life

bout one year of operation can be expected when using Sony UM-3(NS) New Super Batteries (or Eveready Heavy Duty Batteries o. 1215). Be sure to replace the batteries once a year to avoid amage from leaking batteries.

ote

e sure to turn on the receiver before installing or replacing the batteries.

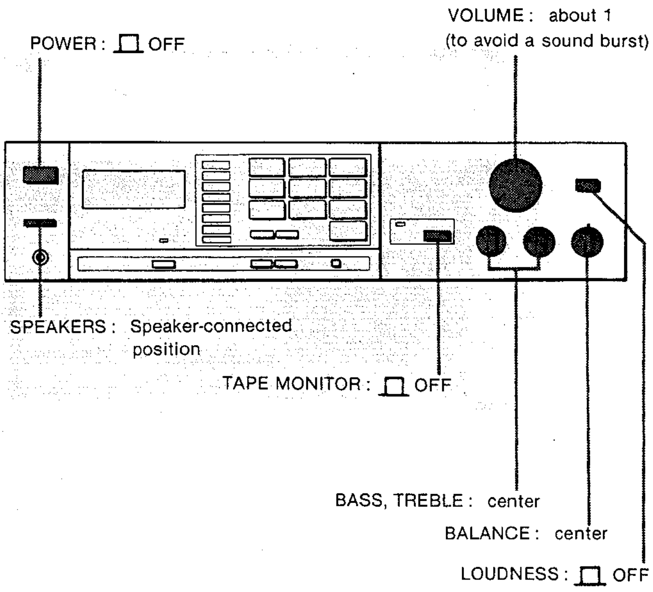
f the batteries are installed or replaced with the power turned off, ncorrect figures will appear in the frequency/function display.

n that case:

❶ Leave the unit with power off for 30 minutes.
❷ Turn on the power.
❸ Install the two batteries.
❹ Place the desired frequencies in memory again.

PREPARATION

Before proceeding to any type of operation, set the controls and switches as shown.


VOLUME : about 1
(to avoid a sound burst)
POWER : ☐ OFF
SPEAKERS : Speaker-connected position
TAPE MONITOR : ☐ OFF
BASS, TREBLE : center
BALANCE : center
LOUDNESS : ☐ OFF

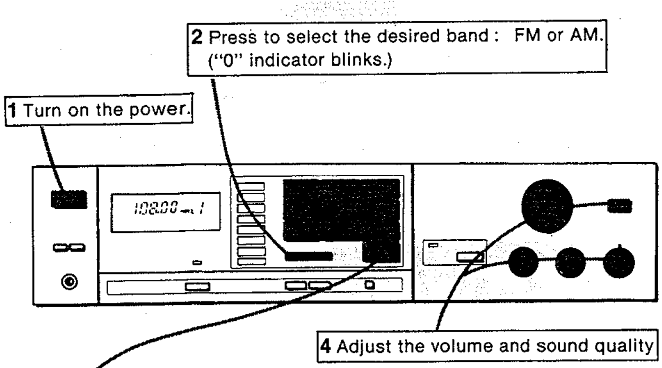
BROADCAST RECEPTION

This receiver incorporates the following tuning systems which give the listener a choice of four ways in which to tune in the desired broadcast.

Direct access tuning	If you know the frequency of the station to be received, you can tune in the station easily by this system.
Auto tuning (for FM reception) Manual tuning (for AM reception)	These systems are convenient for receiving a station whose frequency has not been memorized, or to see what kind of programs are on the air.
Memory preset tuning	Once you program the frequencies into the memory, all you need do to tune in a station is to press the appropriate button.

DIRECT ACCESS TUNING

Follow the numbered sequence.



1 Turn on the power.

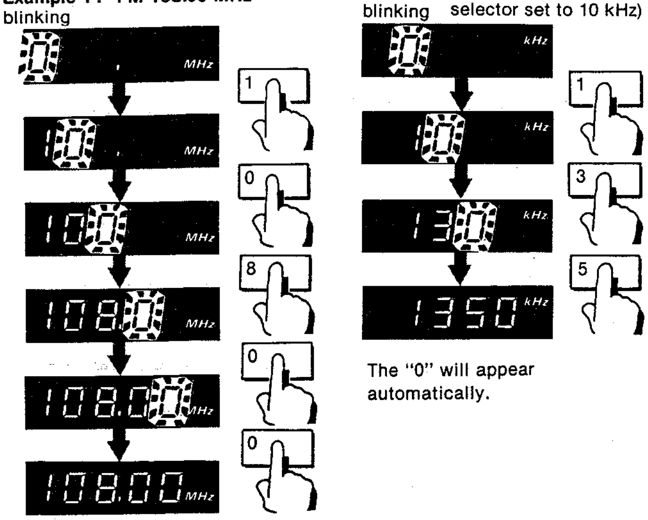
2 Press to select the desired band : FM or AM. ("0" indicator blinks.)

4 Adjust the volume and sound quality

3 Pressing the DIRECT TUNING button, input the frequency of the station to be received.

Example 1 : FM 108.00 MHz

Example 2 : AM 1350 kHz (with AM channel plan selector set to 10 kHz)



The "0" will appear automatically.

You can now hear the station whose frequency you have just input.

Notes on the AM direct access tuning

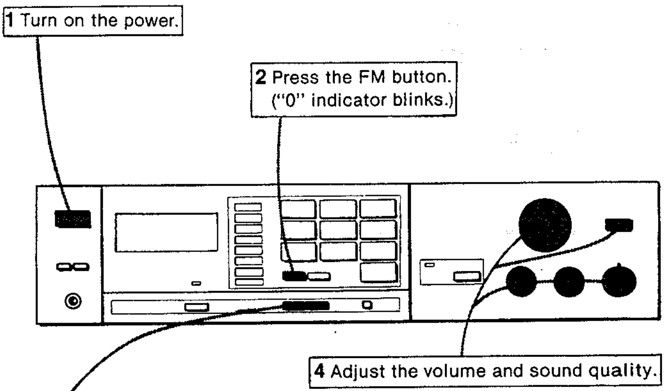
- ●If the AM channel plan selector is set to 10 kHz, the last digit "0" of the frequency will be automatically set when the first two or three digits are input.
- ●If the AM channel plan selector is set to 9 kHz, input the frequency to the last digit.

When the wrong frequency is input

- ● If you mistakenly press a wrong figure, press the appropriate BAND selector again and input the correct frequency.
- ● If you input a frequency outside the receiver's frequency range (FM: 87.5 to 108 MHz, AM 530 to 1,610 kHz), the figures will flash on and off in the frequency/function display. In this case, press the appropriate BAND selector and input the proper frequency.

AUTOMATIC TUNING (for FM reception)

Follow the numbered sequence.

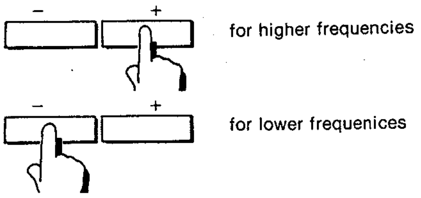


1 Turn on the power.

2 Press the FM button. ("0" indicator blinks.)

4 Adjust the volume and sound quality.

3 Press the "+" or "–" TUNING button to start automatic frequency scanning. There is no need to hold the button down.



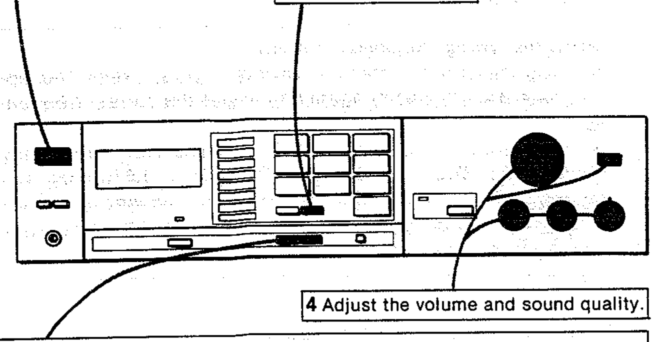
The frequency figures will change rapidly and stop when a signal is received. If the received signal is not the desired one, press the button again.
To stop the automatic tuning, press the MEMORY switch.

If the signal strength is weak, the frequency display figures will not stop at the desired frequency. When this happens, adjust the antenna for optimum reception. If the signal strength is still too weak for automatic tuning, tune in the station as described in "DIRECT ACCESS TUNING".

When the frequency figures reach the end of the tuning range of each band, the frequency will then be scanned from the opposite end of the tuning range.

ANUAL TUNING (for AM reception)

ollow the numbered sequence.

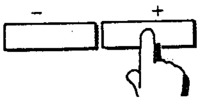


1 Turn on the power.

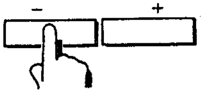
2 Press the AM button. ("0" indicator blinks.)

4 Adjust the volume and sound quality.

3 Press the "+" or "–" TUNING button.
The frequency will change in 10 kHz (or 9 kHz) steps.



for higher frequencies



for lower frequencies

Keep either of the TUNING buttons depressed or repeatedly press and immediately release the button until the correct frequency is indicated.

To quickly tune in a roughly known frequency

You can quickly tune in an FM or AM station whose frequency is roughly known by combining the TUNING button operation with direct access tuning. Input the approximate frequency with the direct access tuning, then press either the "+" or "–" button. For example, if you believe your station is between 700 and 800 kHz, input 7 and press the "+" button, or input 8 and press the "–" button.

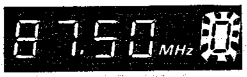
MEMORY PRESET TUNING

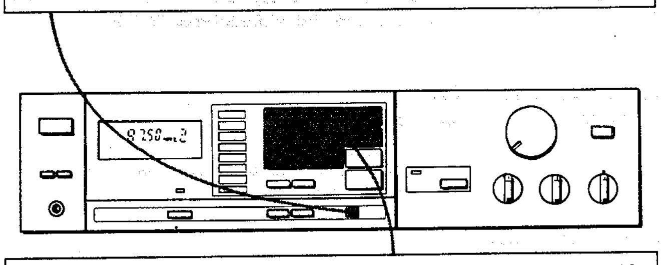
A total of eight FM or AM stations or a combination of both can be preset in any sequence.

To memorize station frequencies

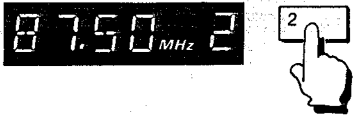
To memorize a station, first tune in the station then, follow the numbered sequence.

1 Press the MEMORY button.
The "0" indicator will appear and blink on the frequency/function display, indicating that the memory circuit is ready for storing the data.





2 While the "0" indicator is blinking, press the desired PRESET TUNING button (1 – 8).



Repeat these steps for each PRESET TUNING button.
Replace the station labels to conform to the selected pre-memorized stations. See "STATION LABEL INSERTION" on page 12.

Notes

- The "0" indicator will go off automatically after a few seconds. When the indicator is out, the memory circuit does not operate to memorize the station.
- The previous memory will be erased when a new frequency is programmed in the memory of the same button. An erasure cannot be made without a new input.

To receive a pre-memorized station

Turn the POWER switch on and simply press the desired PRESET TUNING button.

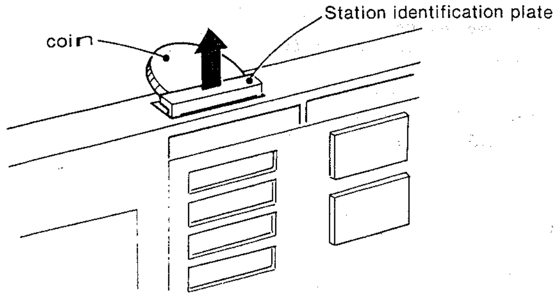
Memory of the last received station

This receiver includes a memory circuit, which is backed up by the batteries, to remember the station which had been received for more than one second just before the power was turned off. This station will be automatically tuned in when the power is turned on again.
This memory system enables you to make a timer-activated recording from the receiver.
Note: If the power is turned off during memory scanning, even if a station had been received for three seconds, this memory circuit will not operate.

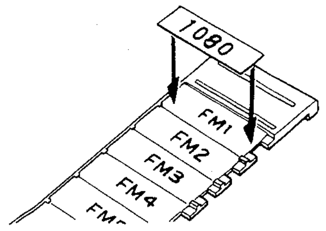
STATION LABEL INSERTION

Station labels are supplied for identification of the preset stations. Affix the labels as follows:

❶ Pull out the station identification plate from the cutout with a coin or similar object.


Station identification plate
coin

❷ Pick out the appropriate labels for the pre-memorized stations and affix them to the plate as shown, in the correct order.


1080
FM1
FM2
FM3
FM4

❸ Replace the plate.
Check that the station labels match the pre-memorized stations by tuning in to each station.

OTHER OPERATING INSTRUCTIONS

REPRODUCTION OF PHONO, DAD/AUX AND TAPE PROGRAM SOURCES

Once you familiarize yourself with the operation of FM/AM reception, you can listen to other program sources as follows:

❶ Set the controls and switches at the initial setting position. (See page 9).
❷ Select the desired program source as required by using the TAPE MONITOR and FUNCTION switches.

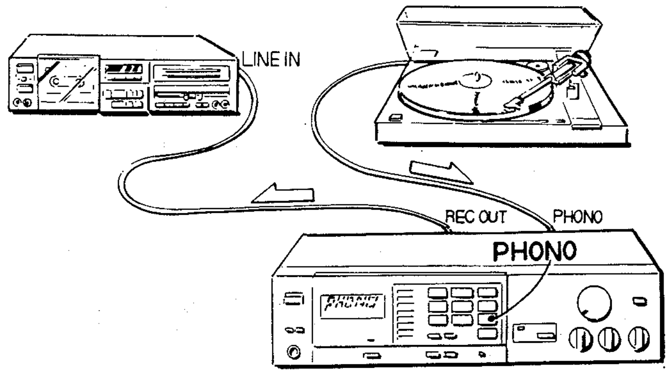
Program	TAPE MONITOR switch	FUNCTION switches
Record playing	Release.	Press PHONO (9).
Auxiliary source		Press DAD/AUX (0).
Taped program	Depress.	Any

❸ Play the program source.
❹ Adjust the sound quality to your preference.

The TAPE MONITOR switch has priority over the FUNCTION switches.
If the TAPE MONITOR switch is depressed, you cannot listen to the program source selected by the FUNCTION switches.

TAPE RECORDING

❶ Select the program to be recorded with the FUNCTION switches.
❷ Release the TAPE MONITOR switch.
❸ Adjust the recording level.
❹ Start recording.


LINE IN
REC OUT
PHONO
PHONO

Note: The VOLUME, BASS, TREBLE and BALANCE controls and the LOUDNESS switch have no effect upon the recording.

Monitoring of a 3-head tape recorder

If your tape recorder has separate record and playback heads, you can monitor the recording results.
Press the TAPE MONITOR switch to monitor the recording results. Press the TAPE MONITOR switch again to release it, and the source sound will be heard. Be sure to keep the monitor switch of the tape recorder in the TAPE position.

1-2. CIRCUIT DESCRIPTION

IC301 (microcomputer)

IC301 (TCP4621BP-6502) is a microcomputer IC.
The terminal functions are as follows:
Main Functions:

- Key input detection
- Fluorescent indicator tube (FIP301) indication output
- Data transmission to PLL OSC SYNTHESIZER IC (IC302: CX778A) (16 bit serial data)
- Control of function switch IC (IC502: CX770A) control signal

IC301 Terminal Functions

FL tube . . . Fluorescent Indicator Tube

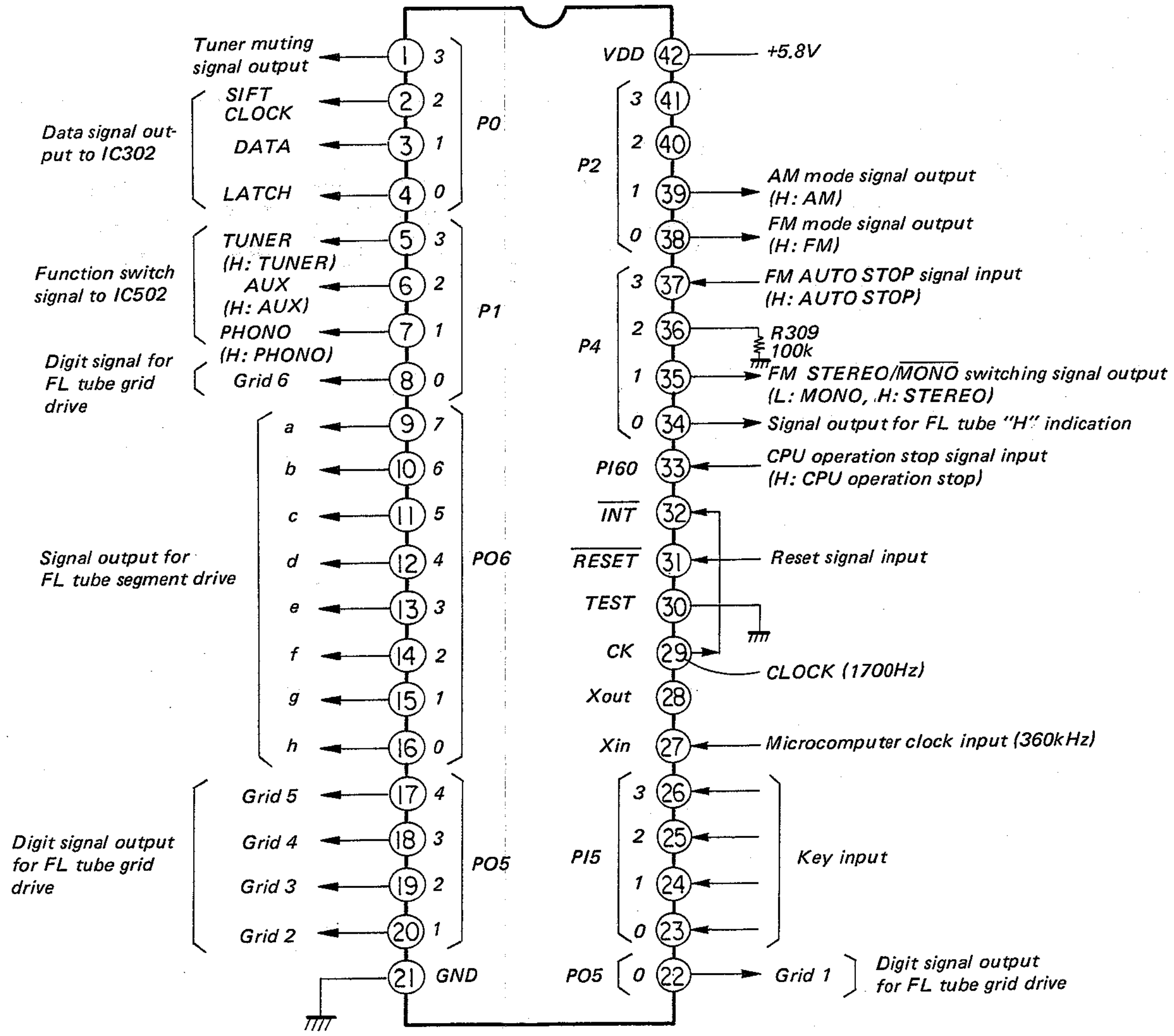

Tuner muting signal output
Data signal output to IC302
SIFT CLOCK
DATA
LATCH
Function switch signal to IC502
TUNER (H: TUNER)
AUX (H: AUX)
PHONO (H: PHONO)
Digit signal for FL tube grid drive
Grid 6
Signal output for FL tube segment drive
a
b
c
d
e
f
g
h
Digit signal output for FL tube grid drive
Grid 5
Grid 4
Grid 3
Grid 2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
GND
P0
P1
PO6
PO5
VDD
42
+5.8V
P2
41
40
39
38
AM mode signal output (H: AM)
FM mode signal output (H: FM)
P4
37
36
35
34
FM AUTO STOP signal input (H: AUTO STOP)
R309 100k
FM STEREO/MONO switching signal output (L: MONO, H: STEREO)
Signal output for FL tube "H" indication
PI60
33
CPU operation stop signal input (H: CPU operation stop)
INT
32
RESET
31
Reset signal input
TEST
30
CK
29
CLOCK (1700Hz)
Xout
28
Xin
27
Microcomputer clock input (360kHz)
PI5
26
25
24
23
Key input
PO5
22
Grid 1
Digit signal output for FL tube grid drive

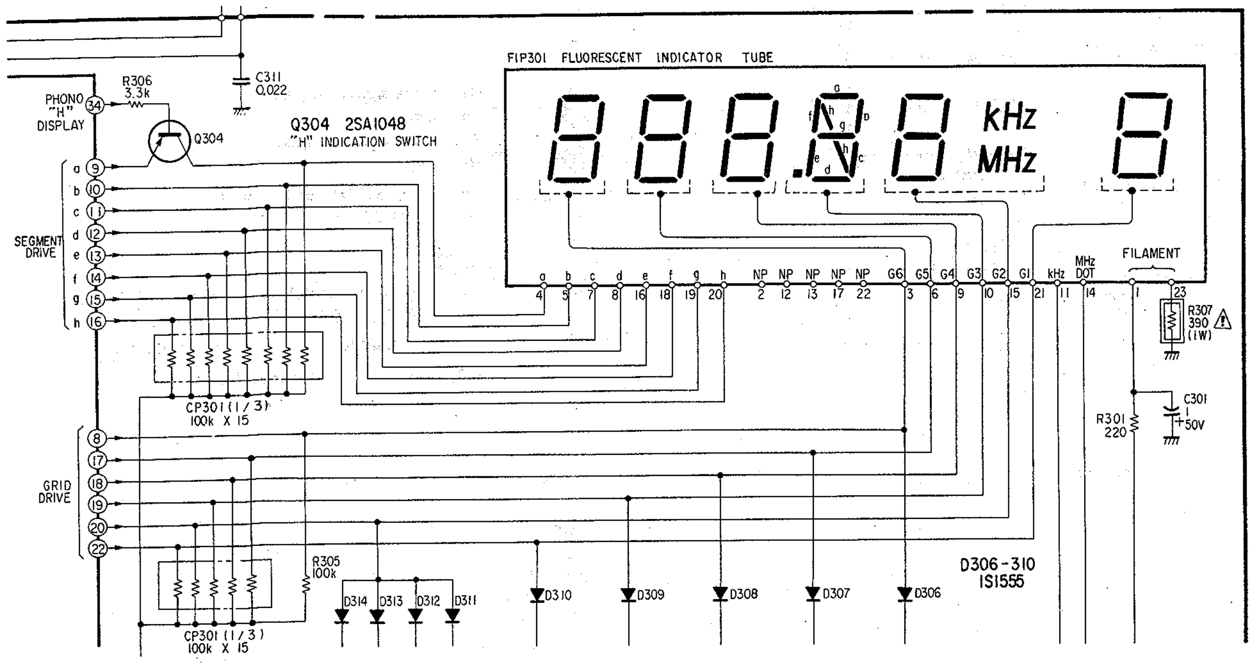
Fig. 1

Fluorescent Indicator Tube (FL Tube)

The FL tube performs indication of frequency received and function. The indication is done by the segment drive signal (see Fig. 3) and grid drive signal (see Fig. 4) output from IC301 (microcomputer).

The indication method is as follows. The grid is turned on in order (G1–G6), by time sharing, by the grid drive signal, and the a-h segment drive signal is sent out in conjunction with this.

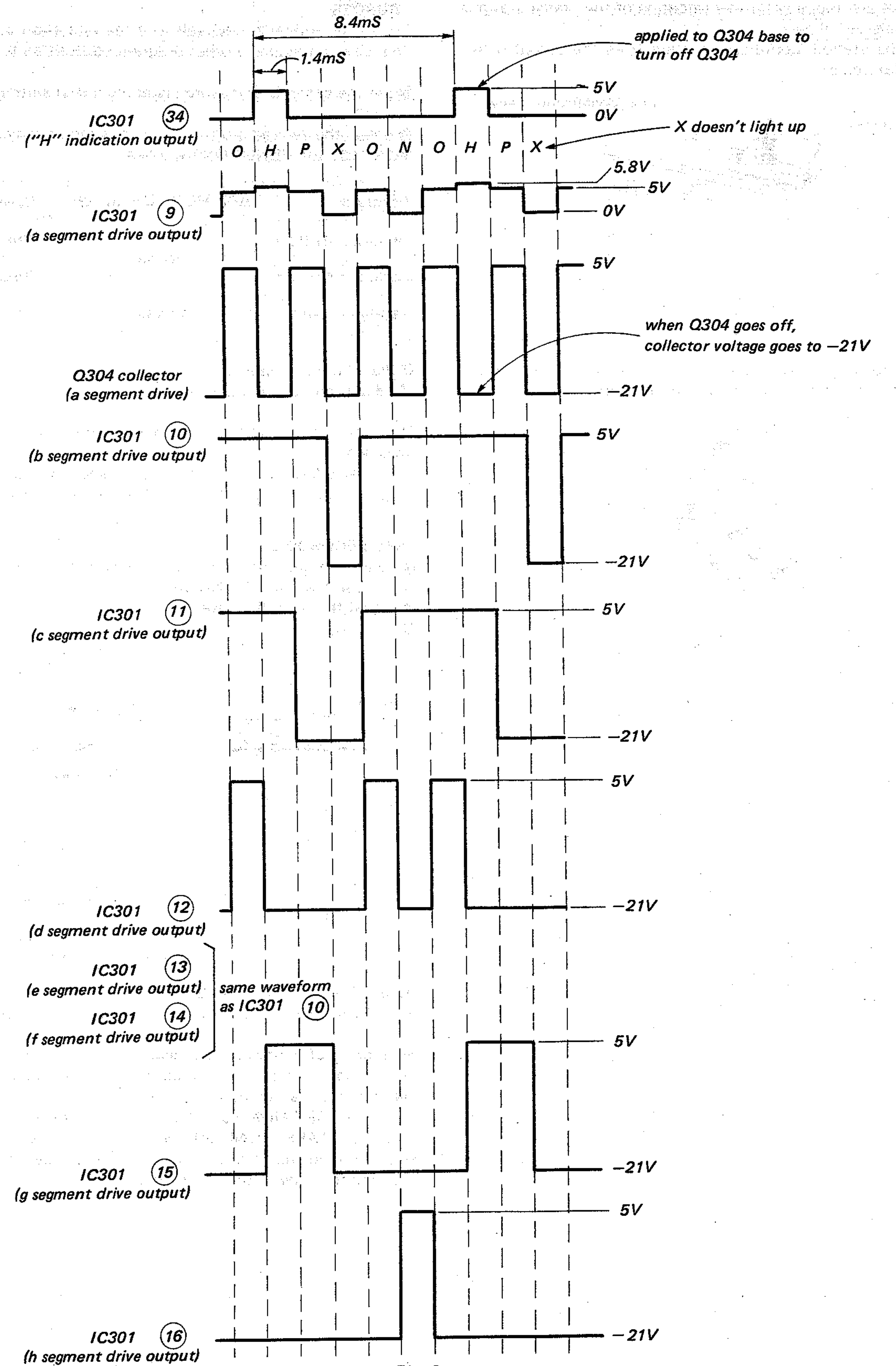
For the "H" indication during "PHONO" indication, considering the "H" portion only, the "A" indication segment drive signal is output from IC301, and a high pulse is output from IC301 pin ㉞ , timed with 'a' segment drive, and applied to Q304 base. Therefore, Q304 goes off and 'a' segment does not light up, but becomes "H" indication.
(see Fig. 3)



PHONO "H" DISPLAY
R306 3.3k
C311 0.022
Q304
Q304 2SA1048
"H" INDICATION SWITCH
SEGMENT DRIVE
a ⑨
b ⑩
c ⑪
d ⑫
e ⑬
f ⑭
g ⑮
h ⑯
㉞
CP301 (1/3) 100k X 15
GRID DRIVE
⑧
⑰
⑱
⑲
⑳
㉒
R305 100k
D314
D313
D312
D311
D310
D309
D308
D307
D306
D306-310 IS1555
FIP301 FLUORESCENT INDICATOR TUBE
kHz
MHz
a b c d e f g h NP NP NP NP NP G6 G5 G4 G3 G2 G1 kHz MHz DOT
4 5 7 8 16 18 19 20 2 12 13 17 22 3 6 9 10 15 21 11 14 1 23
FILAMENT
R307 390 (1W)
R301 220
C301 1 50V

Fig. 2

"H" Indication during "PHONO" Indication and Segment Waveforms for "PHONO" Indication



8.4mS
1.4mS
applied to Q304 base to turn off Q304
5V
0V
IC301 ㉞
("H" indication output)
O H P X O N O H P X
X doesn't light up
5.8V
5V
0V
IC301 ⑨
(a segment drive output)
5V
when Q304 goes off, collector voltage goes to –21V
Q304 collector
(a segment drive)
–21V
IC301 ⑩
(b segment drive output)
5V
–21V
IC301 ⑪
(c segment drive output)
5V
–21V
5V
IC301 ⑫
(d segment drive output)
–21V
IC301 ⑬
(e segment drive output)
IC301 ⑭
(f segment drive output)
same waveform as IC301 ⑩
5V
IC301 ⑮
(g segment drive output)
–21V
5V
IC301 ⑯
(h segment drive output)
–21V

Fig. 3

Grid Drive Signal

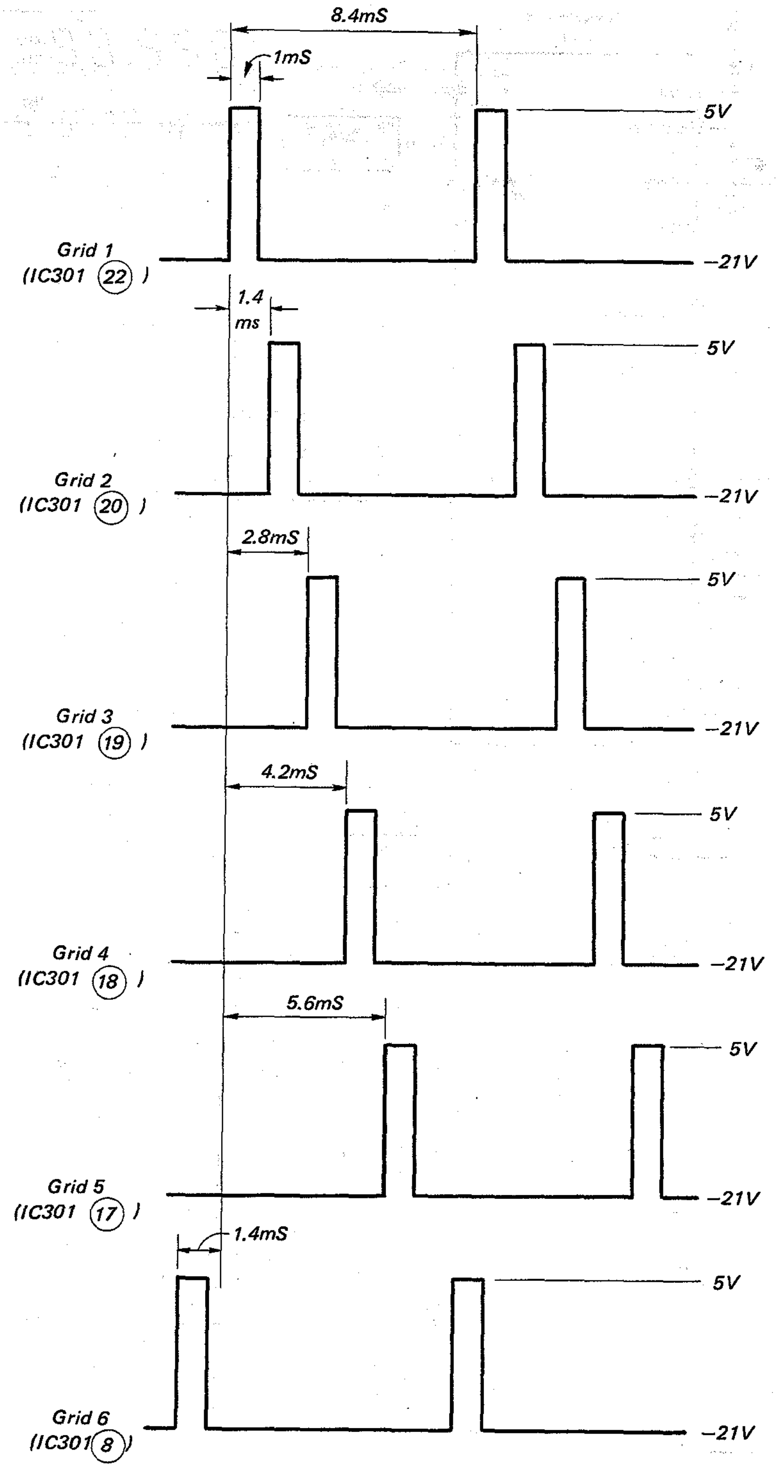
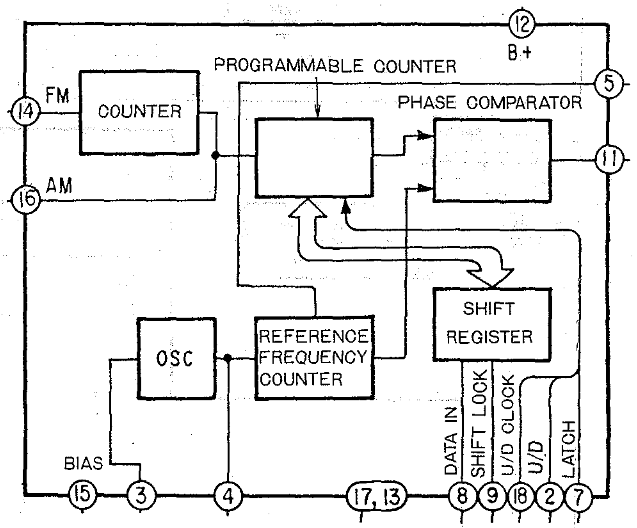


Fig. 4

IC302 (CX778A)

IC302 is the PLL synthesizer to control local oscillator frequency by comparing it with reference frequency. As the local oscillator output is directly (without any additional prescaler) supplied to the programmable counter section, reference frequency is as high as the channel spacing frequency. The benefits owing to this are the stable and almost ripple-less local oscillation and reduced spurious radiation.


⑫
B+
PROGRAMMABLE COUNTER
⑤
PHASE COMPARATOR
⑭ FM
COUNTER
⑪
⑯ AM
OSC
REFERENCE FREQUENCY COUNTER
SHIFT REGISTER
DATA IN
SHIFT LOCK
U/D CLOCK
U/D
LATCH
BIAS
⑮
③
④
17, 13
⑧
⑨
⑱
②
⑦

As shown above, the programmable counter for changing frequency gets the data through the shift register.

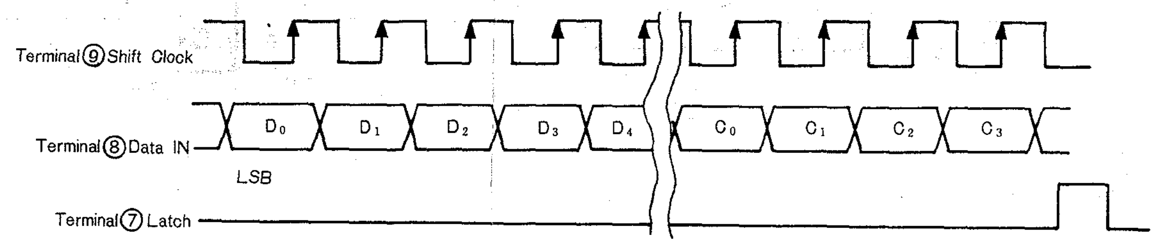
Function of Terminals

Pin No.	Mark	Function
1	Data Check	not used in this set
2	U/D	input terminal for selecting mode of built-in UP/DOWN counter HIGH level: UP mode LOW level: DOWN mode
3, 4	X_1, X_0	terminal for connecting crystal oscillator (7.2MHz)
5	Sys CLK	output terminal for system clock in phase comparator 360kHz
6	Fref	output terminal for reference frequency
7	Latch	input terminal for signal to let the shift register latch the data Data is latched at HIGH level
8	Data IN	input terminal for data
9	Shift CLK	input terminal for clock to let data input in 16-bit serial manner
11	PD	output terminal for phase comparator (tristate)
12	V_{DD}	power supply (+5V)
13	Fout	output terminal for divided signal from the programmable counter
14	FM IN	input terminal for signal from FM local oscillator
15	Sub	substrate
17	GND	ground
18	U/D CLK	input terminal for UP/DOWN clock of UP/DOWN counter

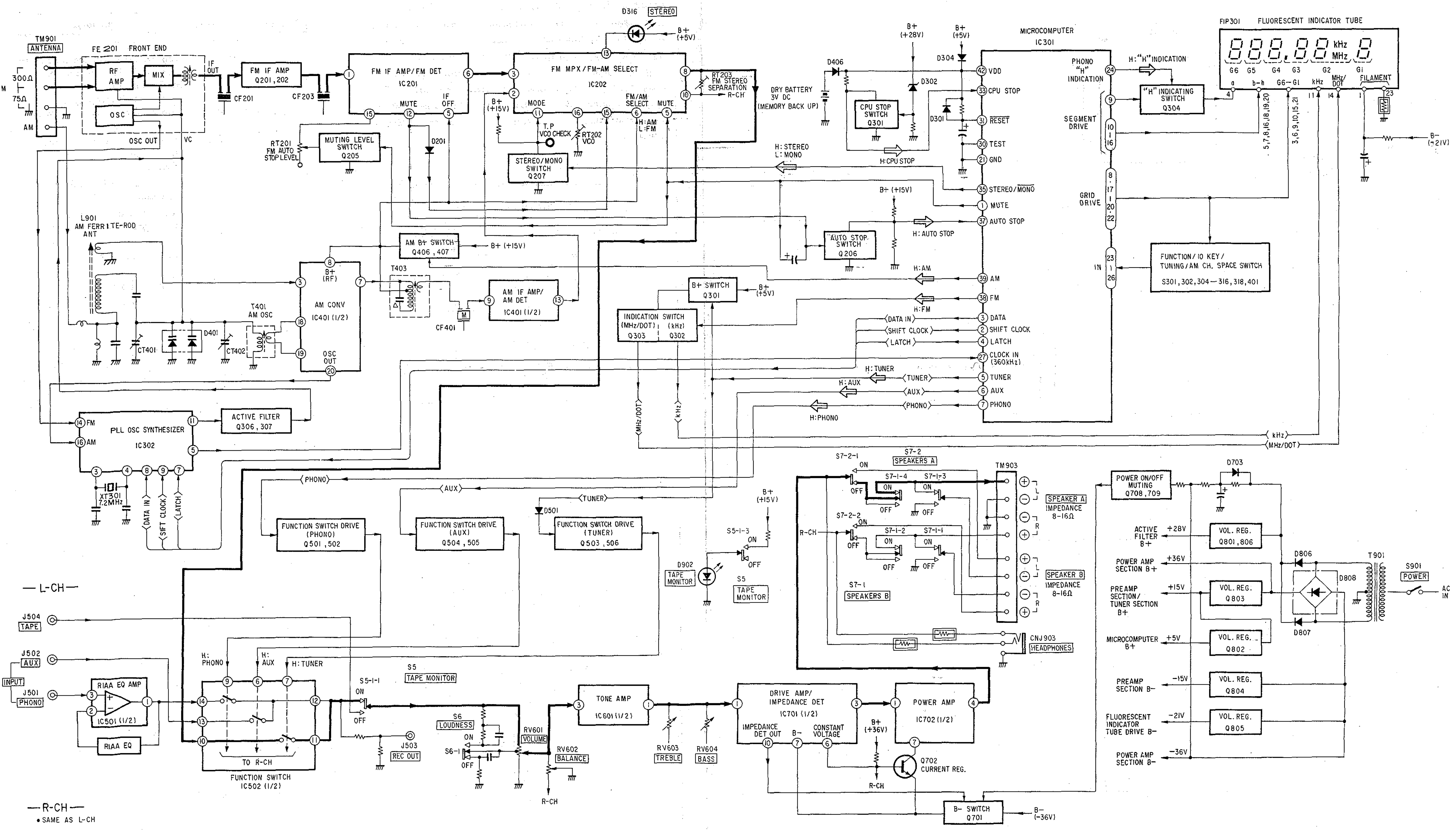
Data Input Procedure from Microcomputer:

- Setting of division ratio

Data for setting division ratio of the programmable counter, comparison frequency and the pin for input are input by 16-bit serial manner by using terminals DATA IN, SHIFT CLOCK and LATCH. The first 12 bits (D_0 – D_{11}) of this 16-bit data works for setting division ratio of the programmable counter and the last 4 bits (C_0 – C_3) works for controlling comparison frequency. Timing chart when data are input is as follows.


Terminal ⑨ Shift Clock
Terminal ⑧ Data IN
D₀
D₁
D₂
D₃
D₄
C₀
C₁
C₂
C₃
LSB
Terminal ⑦ Latch

1-3. BLOCK DIAGRAM


TM901
ANTENNA
FM
300Ω
75Ω
AM
FE 201 FRONT END
RF AMP
MIX
OSC
OSC OUT
VC
IF OUT
CF201
FM IF AMP
Q201,202
CF203
FM IF AMP/FM DET
IC201
MUTE
IF OUT
RT201
FM AUTO STOP LEVEL
MUTING LEVEL SWITCH
Q205
D201
D316
STEREO
B+ (+5V)
FM MPX/FM-AM SELECT
IC202
B+ (+15V)
MODE
T.P
VCO CHECK
RT202
VCO
FM/AM SELECT
MUTE
H:AM
L:FM
RT203
FM STEREO SEPARATION
R-CH
STEREO/MONO SWITCH
Q207
DRY BATTERY
3V DC
(MEMORY BACK UP)
D406
B+ (+28V)
B+ (+5V)
D304
D302
CPU STOP SWITCH
Q301
D301
H:CPU STOP
H:STEREO
L:MONO
MICROCOMPUTER
IC301
VDD
CPU STOP
RESET
TEST
GND
STEREO/MONO
MUTE
AUTO STOP
AM
FM
DATA
SHIFT CLOCK
LATCH
CLOCK IN (360kHz)
TUNER
AUX
PHONO
PHONO "H" INDICATION
SEGMENT DRIVE
GRID DRIVE
IN
H:"H" INDICATION
"H" INDICATING SWITCH
Q304
FIP301
FLUORESCENT INDICATOR TUBE
kHz
MHz
G6 G5 G4 G3 G2 G1
FILAMENT
5,7,8,16,18,19,20
3,6,9,10,15,21
B- (-21V)
FUNCTION/10 KEY/
TUNING/AM CH. SPACE SWITCH
S301,302,304—316,318,401
B+ (+15V)
AUTO STOP SWITCH
Q206
H:AUTO STOP
H:AM
H:FM
B+ SWITCH
Q301
B+ (+5V)
INDICATION SWITCH
(MHz/DOT) (kHz)
Q303 Q302
DATA IN
SHIFT CLOCK
LATCH
H:TUNER
H:AUX
H:PHONO
MHz/DOT
kHz
L901
AM FERRITE-ROD ANT
AM B+ SWITCH
Q406,407
B+ (+15V)
B+ (RF)
AM CONV
IC401 (1/2)
OSC OUT
T403
CF401
AM IF AMP/
AM DET
IC401 (1/2)
T401
AM OSC
D401
CT401
CT402
PLL OSC SYNTHESIZER
IC302
FM
AM
ACTIVE FILTER
Q306,307
XT301
7.2MHz
DATA IN
SIFT CLOCK
LATCH
PHONO
AUX
TUNER
D501
FUNCTION SWITCH DRIVE
(PHONO)
Q501,502
FUNCTION SWITCH DRIVE
(AUX)
Q504,505
FUNCTION SWITCH DRIVE
(TUNER)
Q503,506
— L-CH —
J504
TAPE
J502
AUX
INPUT
J501
PHONO
RIAA EQ AMP
IC501 (1/2)
RIAA EQ
H: PHONO
H: AUX
H: TUNER
TO R-CH
FUNCTION SWITCH
IC502 (1/2)
S5-1-1
ON
OFF
S5
TAPE MONITOR
J503
REC OUT
S6
LOUDNESS
S6-1
ON
OFF
RV601
VOLUME
RV602
BALANCE
R-CH
TONE AMP
IC601 (1/2)
RV603
TREBLE
RV604
BASS
DRIVE AMP/
IMPEDANCE DET
IC701 (1/2)
IMPEDANCE DET OUT
B-
CONSTANT VOLTAGE
B+ (+36V)
POWER AMP
IC702 (1/2)
Q702
CURRENT REG.
R-CH
B- SWITCH
Q701
B- (-36V)
B+ (+15V)
S5-1-3
ON
OFF
D902
TAPE MONITOR
S5
TAPE MONITOR
S7-2
SPEAKERS A
S7-2-1
ON
OFF
S7-1-4
S7-1-3
S7-2-2
S7-1-2
S7-1-1
S7-1
SPEAKERS B
R-CH
TM903
SPEAKER A
IMPEDANCE 8-16Ω
SPEAKER B
IMPEDANCE 8-16Ω
L
R
CNJ903
HEADPHONES
POWER ON/OFF MUTING
Q708,709
D703
ACTIVE FILTER B+
+28V
VOL. REG.
Q801,806
POWER AMP SECTION B+
+36V
PREAMP SECTION/ TUNER SECTION B+
+15V
VOL. REG.
Q803
MICROCOMPUTER B+
+5V
VOL. REG.
Q802
PREAMP SECTION B-
-15V
VOL. REG.
Q804
FLUORESCENT INDICATOR TUBE DRIVE B-
-21V
VOL. REG.
Q805
POWER AMP SECTION B-
-36V
D806
D807
D808
T901
S901
POWER
AC IN

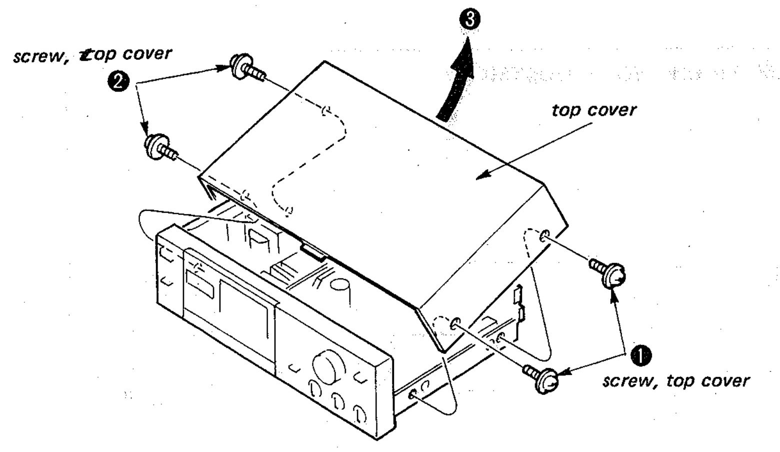
— R-CH —
• SAME AS L-CH

SECTION 2
DISASSEMBLY

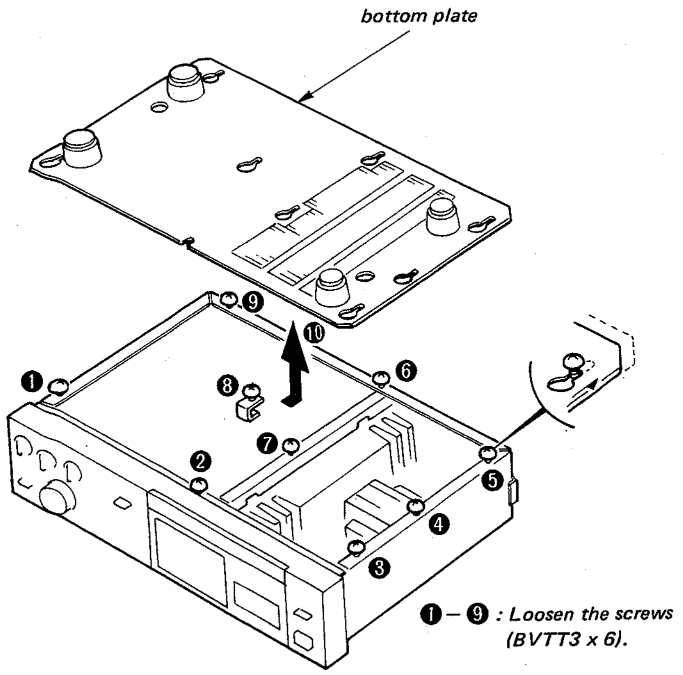
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

TOP COVER

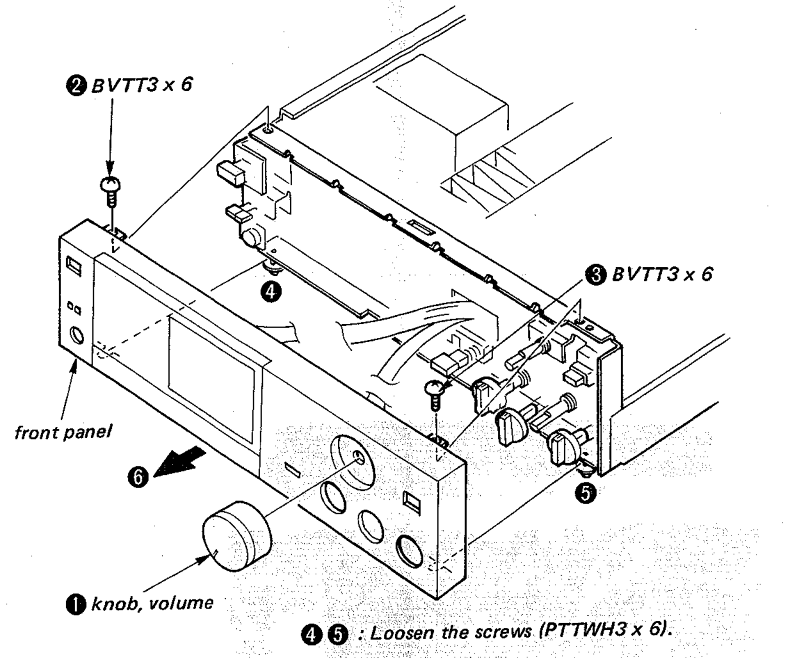

③
screw, top cover
②
top cover
①
screw, top cover

BOTTOM PLATE


bottom plate
⑨
⑩
①
⑥
⑧
⑦
②
⑤
④
③

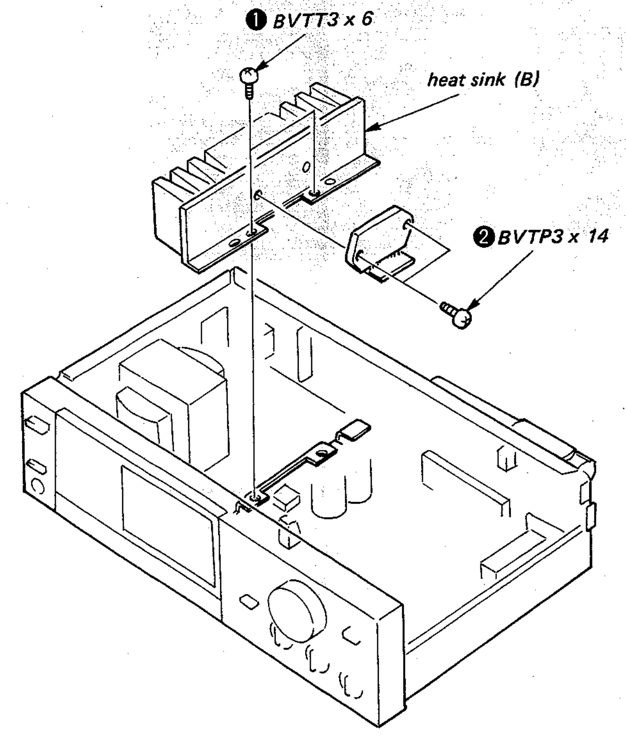
①–⑨ : Loosen the screws (BVTT3 x 6).

FRONT PANEL

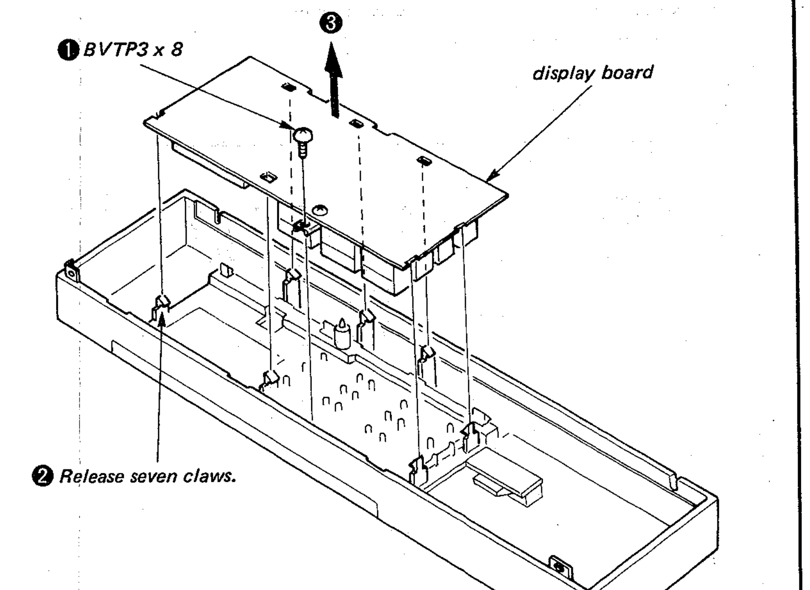

② BVTT3 x 6
④
③ BVTT3 x 6
front panel
⑥
⑤
① knob, volume

④⑤ : Loosen the screws (PTTWH3 x 6).

HEAT SINK (B)


① BVTT3 x 6
heat sink (B)
② BVTP3 x 14

DISPLAY BOARD

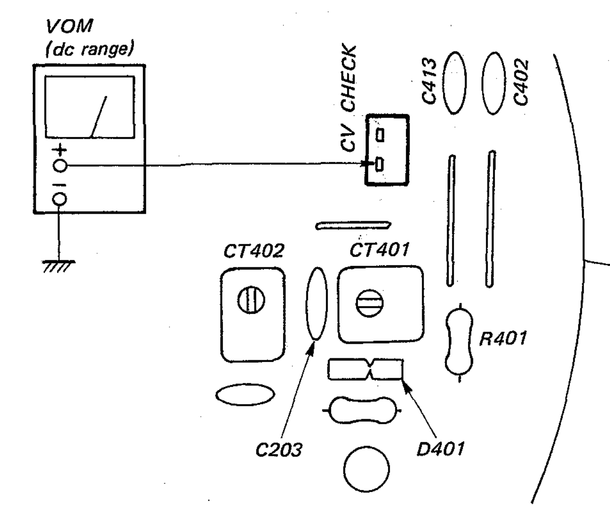

③
① BVTP3 x 8
display board
② Release seven claws.

SECTION 3

ADJUSTMENTS

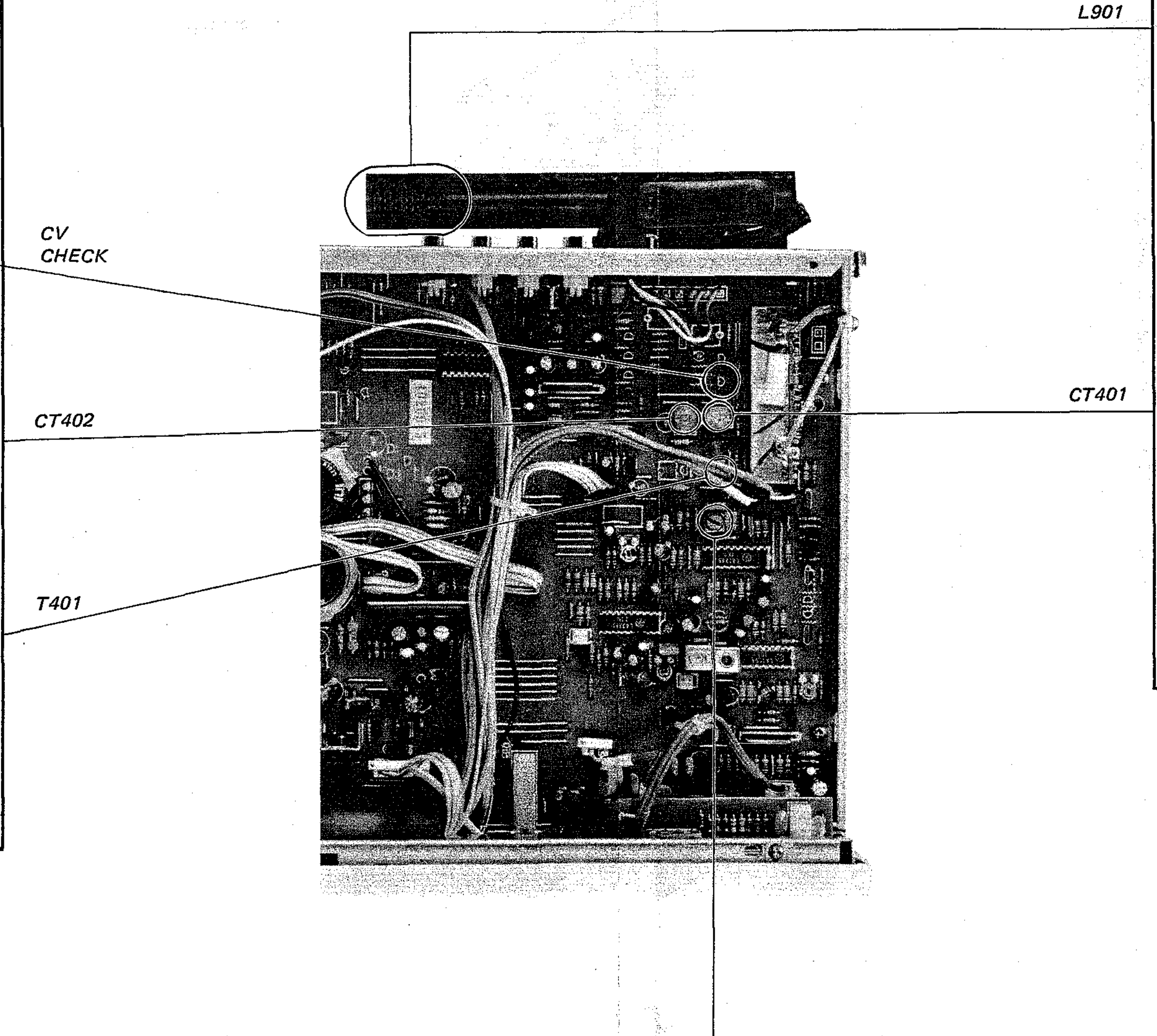
AM SECTION

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.


VOM
(dc range)
+
−
CV CHECK
C413
C402
CT402
CT401
R401
C203
D401

AM FREQUENCY COVERAGE ADJUSTMENT

frequency display in set	530kHz (10kHz step)	1,610kHz (10kHz step)
Voltage at test point (CV CHECK)	1.5V	22V
Adjustment part	T401	CT402


L901
CV CHECK
CT402
T401
CT401

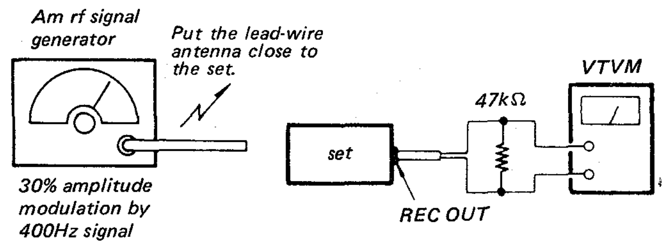
AM IF ALIGNMENT

Adjust for a maximum reading on VOM.

450kHz	T403

AM TRACKING ADJUSTMENT

Setting:


Am rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal
set
47kΩ
VTVM
REC OUT

Procedure:

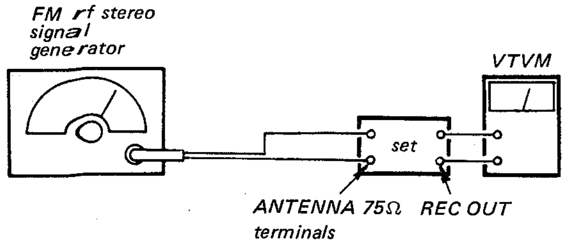
1. Tune the set to the SG signal.
2. Adjust for a maximum reading on VTVM.

	SG and set frequency	Adjustment part	Reading on VTVM
1.	600kHz	core of L901	Maximum
2.	1,400kHz	CT401	

FM SECTION

FM Stereo Separation Adjustment

Procedures:


FM rf stereo signal generator
VTVM
set
ANTENNA 75Ω terminals
REC OUT

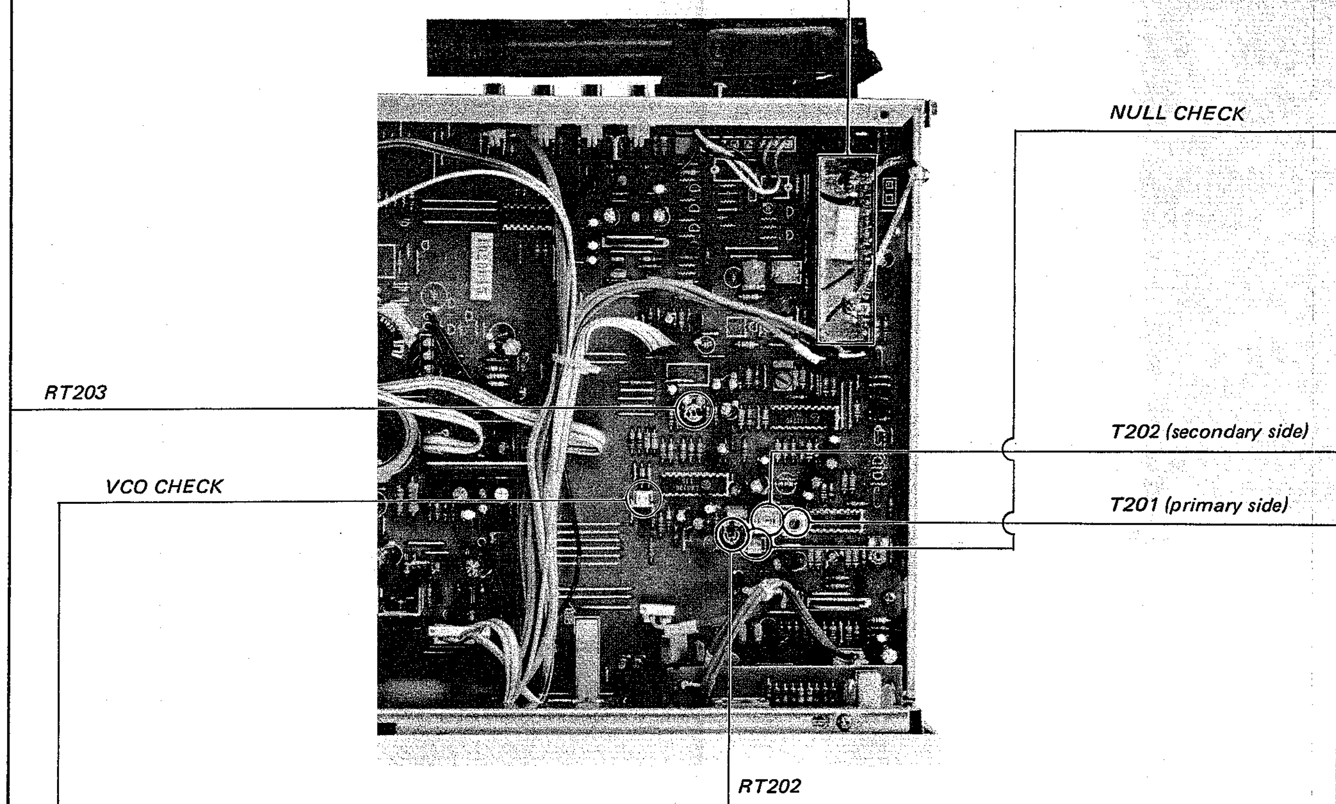
Carrier frequency: 98MHz
Output level: 1mV (60dB)
Modulation
Audio 400Hz: 33.75kHz deviation (45%)
Sub channel 38kHz: 33.75kHz deviation (45%)
Pilot signal 19kHz: 7.5kHz deviation (10%)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT203 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT203 for minimum reading.

L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

The separations of both channels should be equal.

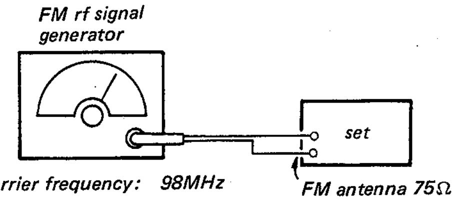
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.


RT203
VCO CHECK
NULL CHECK
T202 (secondary side)
T201 (primary side)
RT202

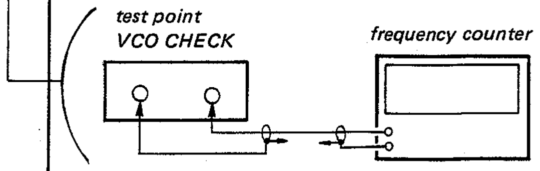
VCO Adjustment

A) Regular Method

Procedure:


FM rf signal generator
set
FM antenna 75Ω terminal

Carrier frequency: 98MHz
Modulation: no modulation
Output level: 1mV (60dB)

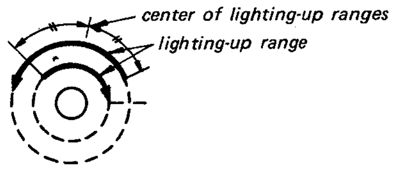

test point VCO CHECK
frequency counter

1. Tune the set to 98MHz.
2. Adjust RT202 for 19kHz ±50Hz on the counter.

B) Simple Method

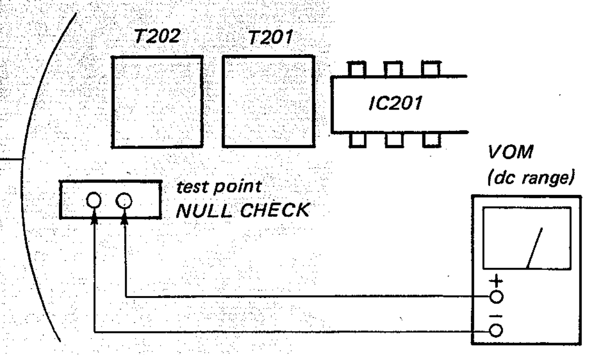
Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT202 clockwise or counterclockwise and memorize the lighting-up range of stereo lamp.
3. Secure RT202 at the center of the lighting-up range of both turns as shown below.


center of lighting-up ranges
lighting-up range

FM Discriminator Adjustment 1

Setting:


T202
T201
IC201
VOM (dc range)
test point NULL CHECK
+
–

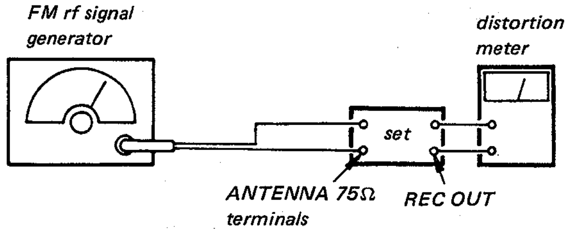
Procedure:

1. Tune the set in the strong station-signal.
2. Adjust the black core (primary-side) of T201 for 0V reading on VOM.

Note: When replacing the ceramic filter perform this alignment.

FM Discriminator Alignment 2

Setting:

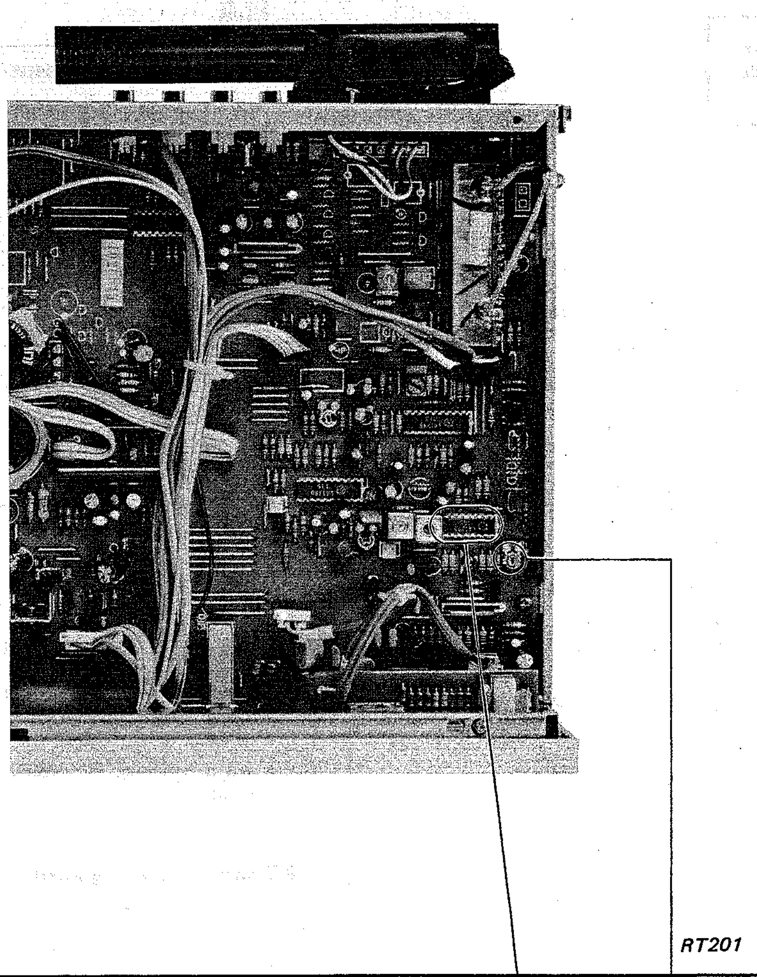

FM rf signal generator
distortion meter
set
ANTENNA 75Ω terminals
REC OUT

Carrier frequency: 98MHz
Modulation: 400Hz, 75kHz deviation (100%)
Output level: 10µV (20dB)

Procedure:

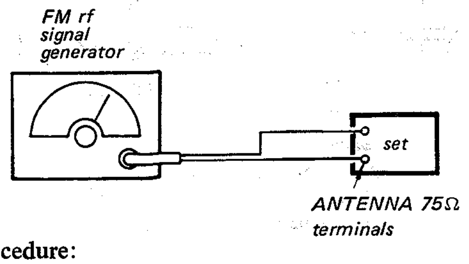
Adjust the white core (secondary side) of T202 for minimum distortion.

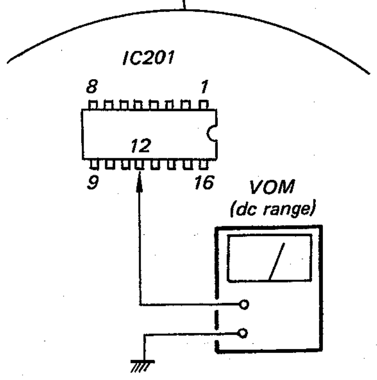
Note: When replacing the ceramic filter, perform this alignment.
Repeat the secondary-side and primary-side alignments several times.



FM Auto Stop Level Adjustment

Setting:


FM rf signal generator
set
ANTENNA 75Ω terminals


IC201
8
1
12
9
16
VOM (dc range)

Procedure:

Carrier frequency: *98MHz*
Modulation: *400Hz, 75kHz deviation (100%)*
Output level: *56μV (35dB)*

1. Tune the set to 98MHz by pressing the TUNING buttons.
2. Adjust RT201 so that the VOM reading changes from 5.8V to 0V.

MEMO

SECTION 4
DIAGRAMS

Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM.

  No mark : FM
  ( ) : AM
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S301	FM	OFF
S302	AM	OFF
S304	FM MODE	OFF
S305	1	OFF
S306	2	OFF
S307	3	OFF
S308	4	OFF
S309	5	OFF
S310	6	OFF
S311	7	OFF
S312	8	OFF
S313	9, PHONO	OFF
S314	0, DAD/AUX	OFF
S315	TUNING –	OFF
S316	TUNING +	OFF
S318	MEMORY	OFF
S401	AM CH. SPACE	10k

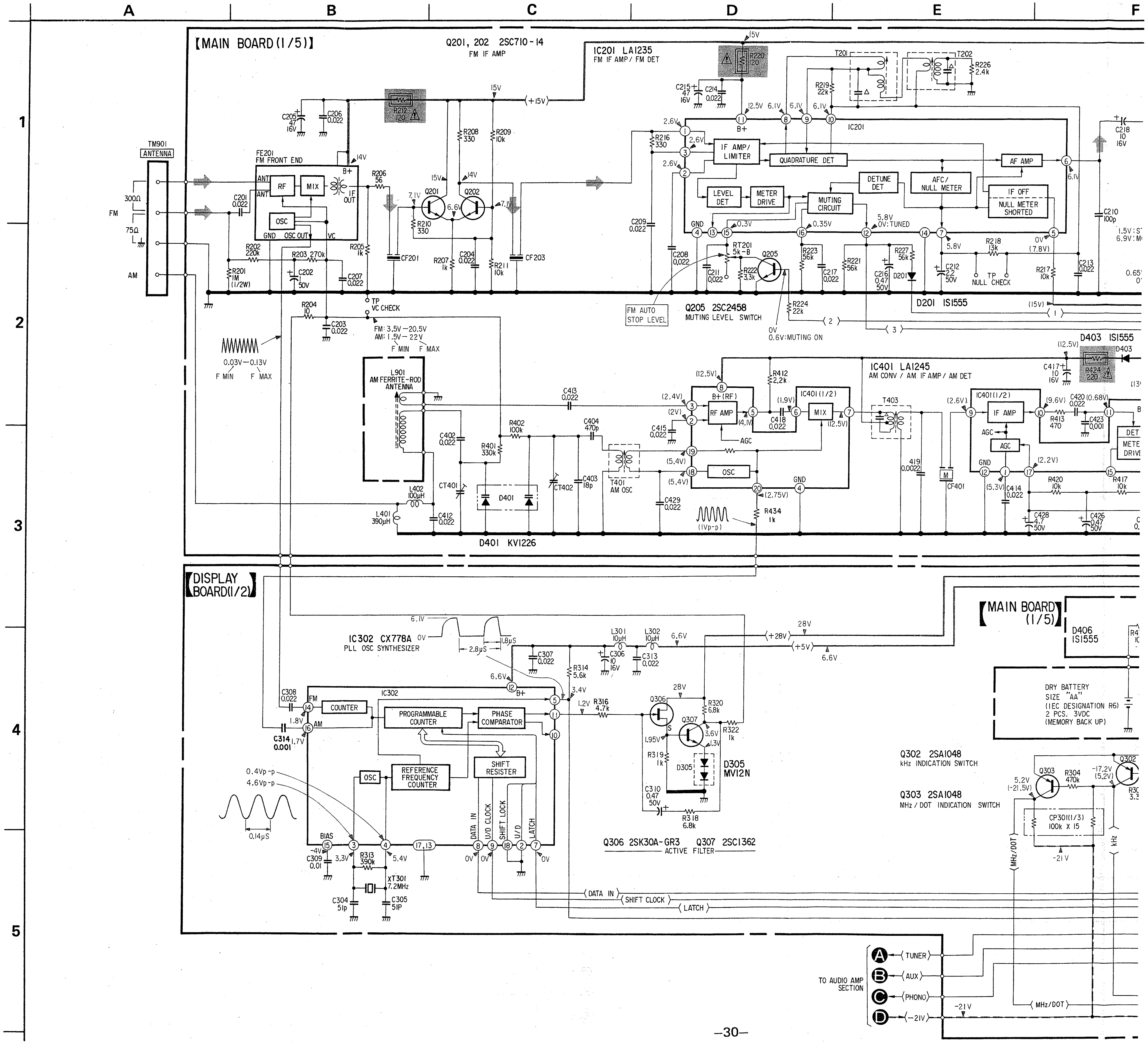
- ➡ : signal path

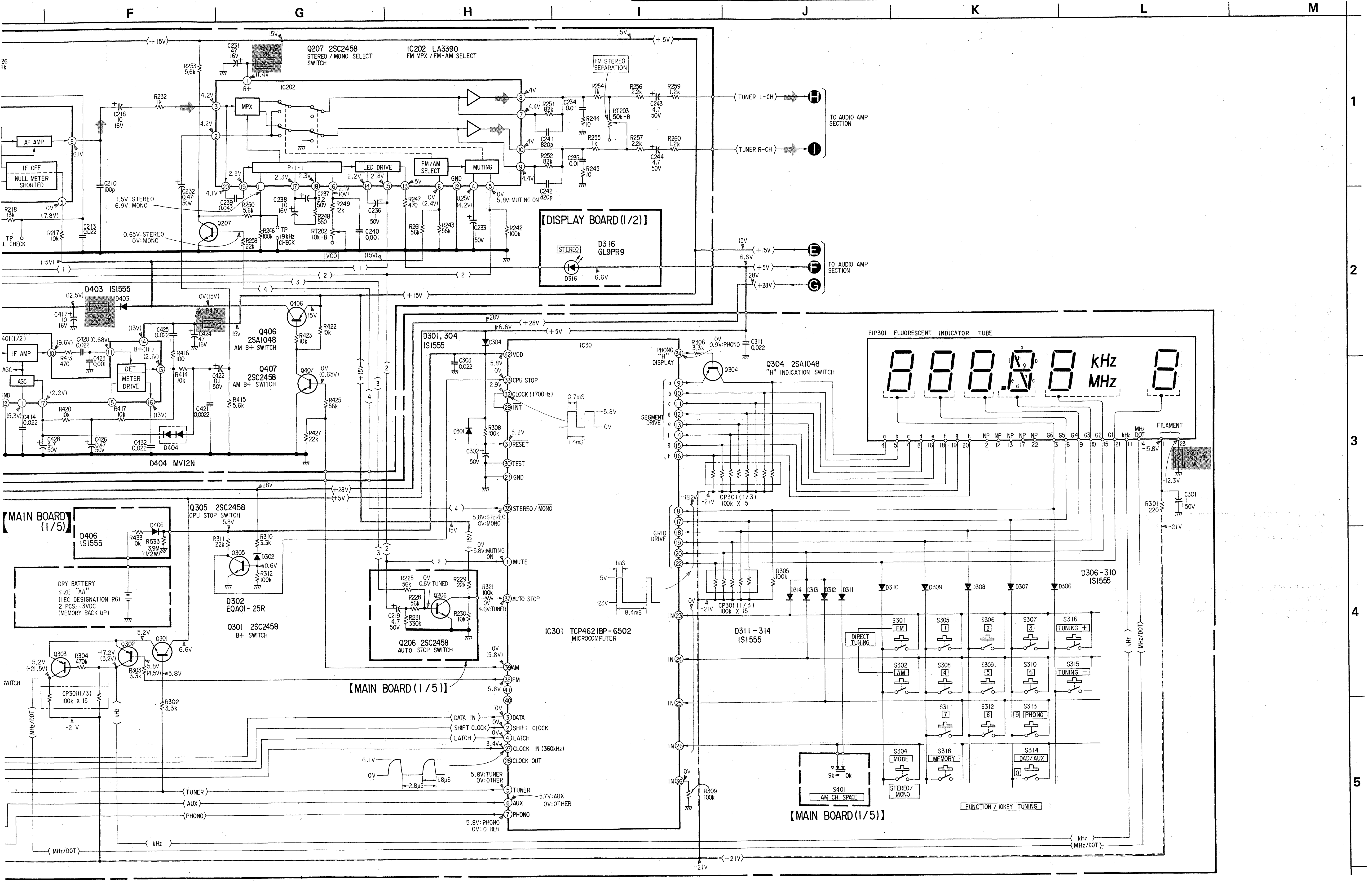
Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. SCHEMATIC DIAGRAM (1)
— Tuner/Indicator Section —


A
B
C
D
E
F
1
2
3
4
5
[MAIN BOARD (1/5)]
Q201, 202 2SC710-14 FM IF AMP
IC201 LA1235 FM IF AMP / FM DET
TM901 ANTENNA
FM
AM
300Ω
75Ω
FE201 FM FRONT END
RF
MIX
OSC
IF AMP/ LIMITER
QUADRATURE DET
AF AMP
LEVEL DET
METER DRIVE
MUTING CIRCUIT
DETUNE DET
AFC/ NULL METER
IF OFF
NULL METER SHORTED
CF201
CF203
Q205 2SC2458 MUTING LEVEL SWITCH
FM AUTO STOP LEVEL
D201 1S1555
D403 1S1555
TP VC CHECK
FM: 3.5V–20.5V
AM: 1.5V–22V
F MIN F MAX
0.03V–0.13V
L901 AM FERRITE-ROD ANTENNA
IC401 LA1245 AM CONV / AM IF AMP / AM DET
RF AMP
MIX
IF AMP
AGC
OSC
T401 AM OSC
T403
CF401
D401 KV1226
TP NULL CHECK
[DISPLAY BOARD (1/2)]
IC302 CX778A PLL OSC SYNTHESIZER
COUNTER
PROGRAMMABLE COUNTER
PHASE COMPARATOR
REFERENCE FREQUENCY COUNTER
SHIFT RESISTER
OSC
XT301 7.2MHz
DATA IN
U/D CLOCK
SHIFT LOCK
U/D
LATCH
Q306 2SK30A-GR3 Q307 2SC1362 ACTIVE FILTER
D305 MV12N
[MAIN BOARD (1/5)]
D406 1S1555
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS. 3VDC (MEMORY BACK UP)
Q302 2SA1048 kHz INDICATION SWITCH
Q303 2SA1048 MHz / DOT INDICATION SWITCH
CP301(1/3) 100k X 15
TO AUDIO AMP SECTION
TUNER
AUX
PHONO
-21V
MHz/DOT
kHz


F
G
H
I
J
K
L
M
1
2
3
4
5
Q207 2SC2458
STEREO / MONO SELECT SWITCH
IC202 LA3390
FM MPX / FM-AM SELECT
IC202
MPX
P.L.L
LED DRIVE
FM/AM SELECT
MUTING
AF AMP
IF OFF
NULL METER SHORTED
FM STEREO SEPARATION
RT203 50k-B
TUNER L-CH
TUNER R-CH
TO AUDIO AMP SECTION
1.5V : STEREO
6.9V : MONO
0.65V : STEREO
0V : MONO
TP 19kHz CHECK
RT202 10k-B
VCO
5.8V : MUTING ON
【DISPLAY BOARD (1/2)】
D316 GL9PR9
STEREO
D403 IS1555
Q406 2SA1048
AM B+ SWITCH
Q407 2SC2458
AM B+ SWITCH
IF AMP
AGC
DET
METER DRIVE
D404 MV12N
D301, 304 IS1555
IC301
VDD
CPU STOP
CLOCK (1700Hz)
INT
RESET
TEST
GND
STEREO / MONO
MUTE
AUTO STOP
AM
FM
DATA
SHIFT CLOCK
LATCH
CLOCK IN (360kHz)
CLOCK OUT
TUNER
AUX
PHONO
5.8V : STEREO
0V : MONO
5.8V : MUTING ON
4.6V : TUNED
5.8V : TUNER
0V : OTHER
5.7V : AUX
0V : OTHER
5.8V : PHONO
0V : OTHER
DATA IN
IC301 TCP4621BP-6502
MICROCOMPUTER
0.7mS
1.4mS
1mS
8.4mS
2.8μS
1.8μS
【MAIN BOARD (1/5)】
D406 IS1555
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS. 3VDC (MEMORY BACK UP)
Q305 2SC2458
CPU STOP SWITCH
D302 EQA01-25R
Q301 2SC2458
B+ SWITCH
Q206 2SC2458
AUTO STOP SWITCH
CP301 (1/3) 100k X 15
PHONO "H" DISPLAY
Q304 2SA1048
"H" INDICATION SWITCH
SEGMENT DRIVE
GRID DRIVE
FIP301 FLUORESCENT INDICATOR TUBE
kHz
MHz
FILAMENT
MHz DOT
D306-310 IS1555
D311-314 IS1555
S301 FM
S305 1
S306 2
S307 3
S316 TUNING +
S302 AM
S308 4
S309 5
S310 6
S315 TUNING −
S311 7
S312 8
S313 9 PHONO
S304 MODE
S318 MEMORY
S314 DAD/AUX 0
STEREO/MONO
DIRECT TUNING
S401 AM CH. SPACE
FUNCTION / 10KEY TUNING
kHz
MHz/DOT
−21V
+15V
+5V
+28V

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM.
  No mark : FM
  ( ) : AM
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S5	TAPE MONITOR	OFF
S6	LOUDNESS	OFF
S7-1	SPEAKER B	OFF
S7-2	SPEAKER A	ON
S901	POWER	OFF

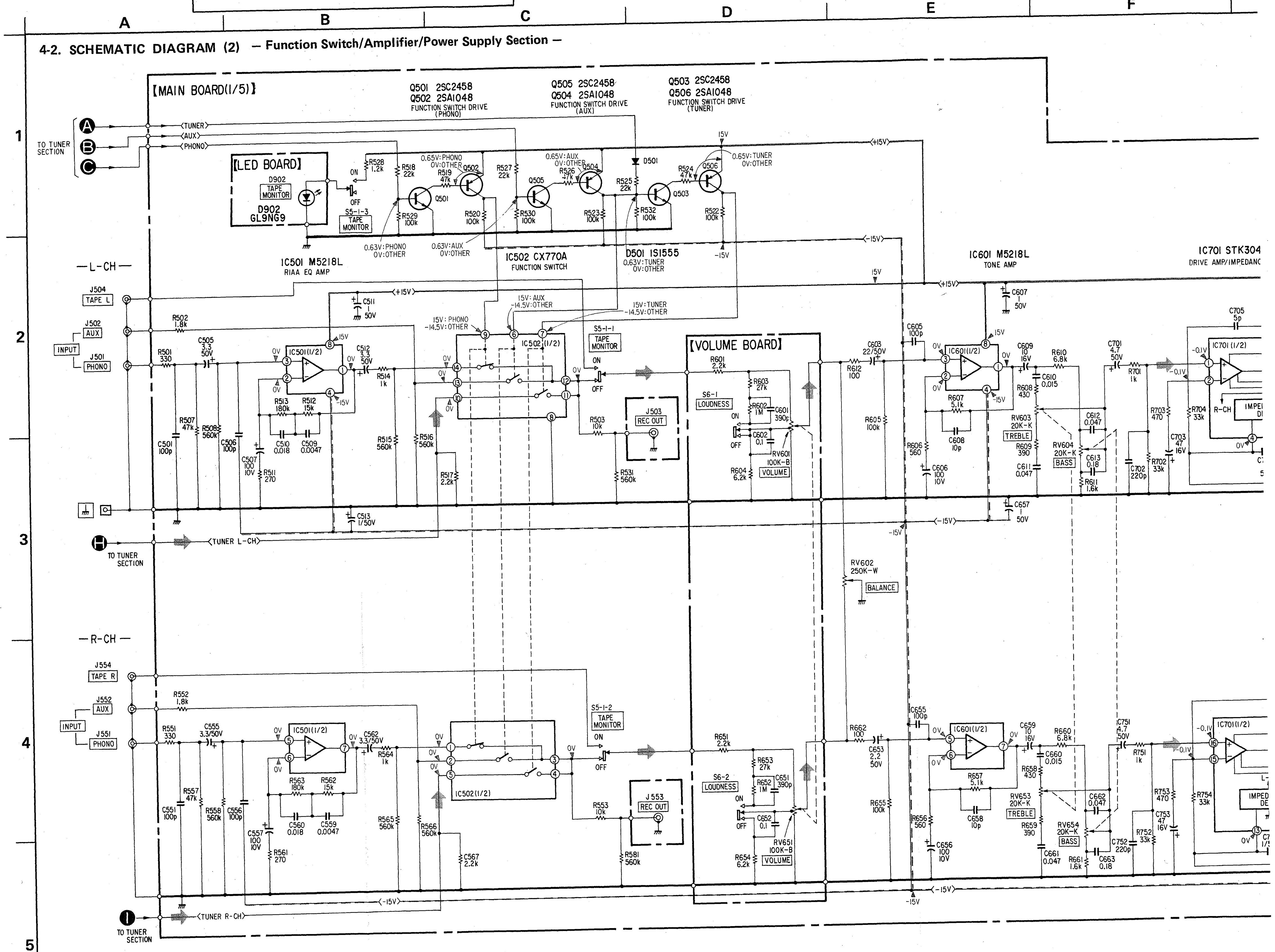
- ➡ : signal path

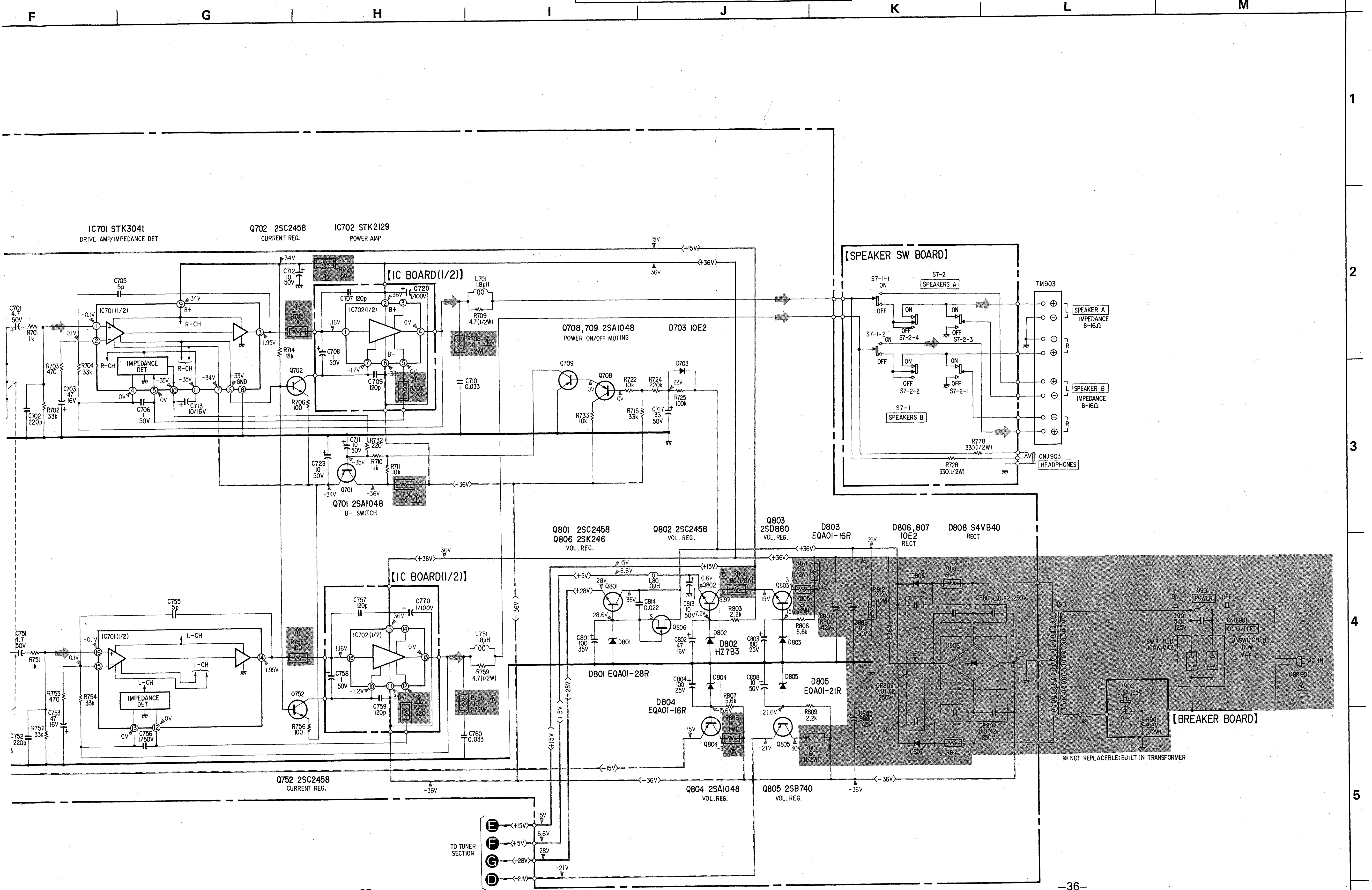
Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

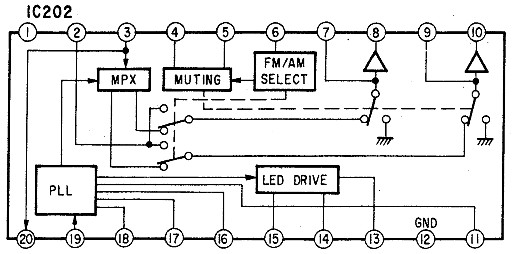
4-2. SCHEMATIC DIAGRAM (2) – Function Switch/Amplifier/Power Supply Section –

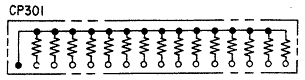

A
B
C
D
E
F
1
2
3
4
5
[MAIN BOARD(1/5)]
Q501 2SC2458
Q502 2SA1048
FUNCTION SWITCH DRIVE (PHONO)
Q505 2SC2458
Q504 2SA1048
FUNCTION SWITCH DRIVE (AUX)
Q503 2SC2458
Q506 2SA1048
FUNCTION SWITCH DRIVE (TUNER)
TO TUNER SECTION
TUNER
AUX
PHONO
[LED BOARD]
D902 TAPE MONITOR
D902 GL9NG9
S5-1-3 TAPE MONITOR
D501
IC501 M5218L
RIAA EQ AMP
IC502 CX770A
FUNCTION SWITCH
D501 1S1555
IC601 M5218L
TONE AMP
IC701 STK304
DRIVE AMP/IMPEDANC
—L-CH—
J504 TAPE L
J502 AUX
INPUT
J501 PHONO
IC501(1/2)
IC502(1/2)
S5-1-1 TAPE MONITOR
[VOLUME BOARD]
S6-1 LOUDNESS
J503 REC OUT
RV601 100K-B VOLUME
IC601(1/2)
RV603 20K-K TREBLE
RV604 20K-K BASS
IC701(1/2)
TUNER L-CH
TO TUNER SECTION
RV602 250K-W
BALANCE
—R-CH—
J554 TAPE R
J552 AUX
INPUT
J551 PHONO
S5-1-2 TAPE MONITOR
S6-2 LOUDNESS
J553 REC OUT
RV651 100K-B VOLUME
RV653 20K-K TREBLE
RV654 20K-K BASS
TUNER R-CH
TO TUNER SECTION
+15V
-15V

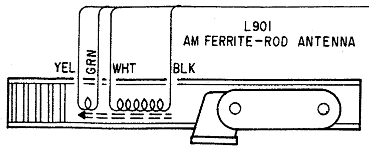

F
G
H
I
J
K
L
M
1
2
3
4
5
IC701 STK3041
DRIVE AMP/IMPEDANCE DET
Q702 2SC2458
CURRENT REG.
IC702 STK2129
POWER AMP
[IC BOARD(1/2)]
IMPEDANCE DET
R-CH
L-CH
Q708,709 2SA1048
POWER ON/OFF MUTING
D703 10E2
Q701 2SA1048
B- SWITCH
Q752 2SC2458
CURRENT REG.
Q801 2SC2458
Q806 2SK246
VOL. REG.
Q802 2SC2458
VOL. REG.
Q803 2SD880
VOL. REG.
D803 EQA01-16R
D806,807 10E2
RECT
D808 S4VB40
RECT
D801 EQA01-28R
D802 HZ7B3
D804 EQA01-16R
D805 EQA01-21R
Q804 2SA1048
VOL. REG.
Q805 2SB740
VOL. REG.
[SPEAKER SW BOARD]
S7-1-1
S7-2
SPEAKERS A
S7-1
SPEAKERS B
TM903
SPEAKER A
IMPEDANCE 8-16Ω
SPEAKER B
IMPEDANCE 8-16Ω
CNJ903
HEADPHONES
R778 330(1/2W)
R728 330(1/2W)
T901
S901 POWER
ON
OFF
CNJ901 AC OUTLET
SWITCHED 100W MAX
UNSWITCHED 100W MAX
AC IN
CNP901
CP801 0.01X2 250V
CP802 0.01X2 250V
CP803 0.01X2 250V
CB902 2.5A 125V
R901 3.3M (1/2W)
[BREAKER BOARD]
※ NOT REPLACEABLE: BUILT IN TRANSFORMER
TO TUNER SECTION
E (+15V)
F (+5V)
G (+28V)
D (-21V)
+15V
+36V
-36V

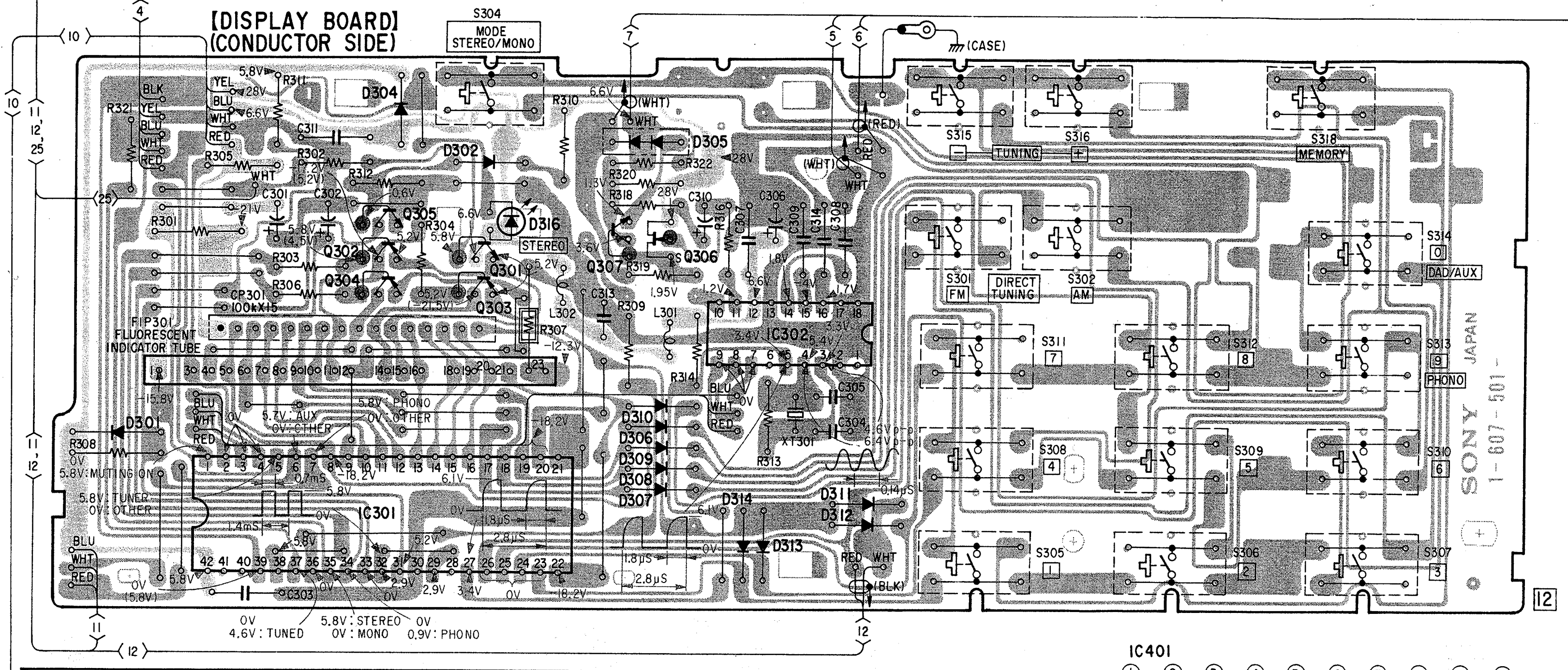
4-3. MOUNTING DIAGRAM

- See page 41 for Semiconductor Lead Layouts.


IC202
MPX
MUTING
FM/AM SELECT
PLL
LED DRIVE
GND

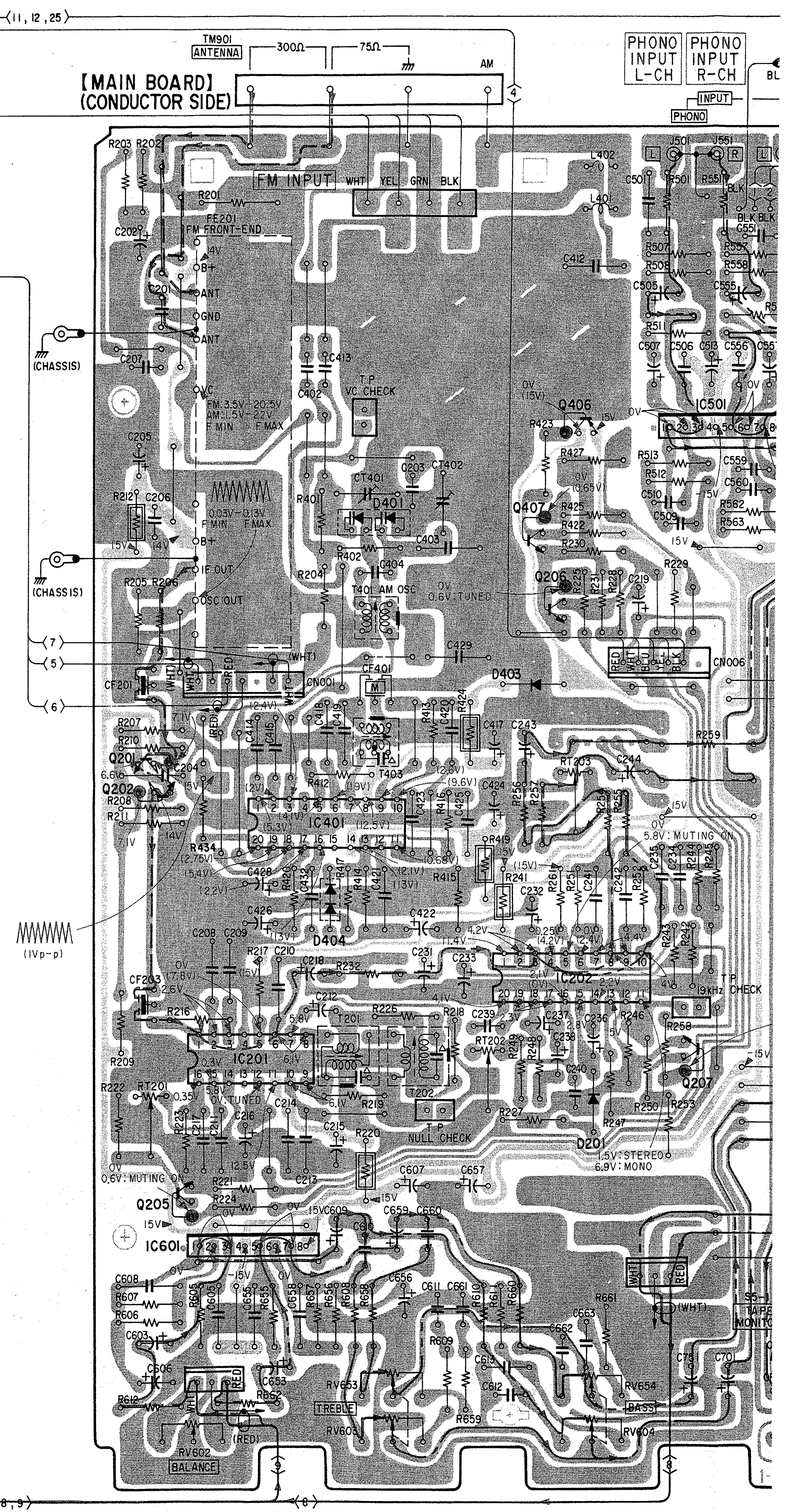


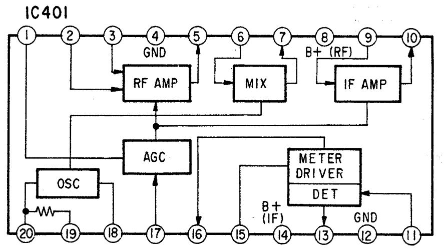

L901
AM FERRITE-ROD ANTENNA
YEL
GRN
WHT
BLK

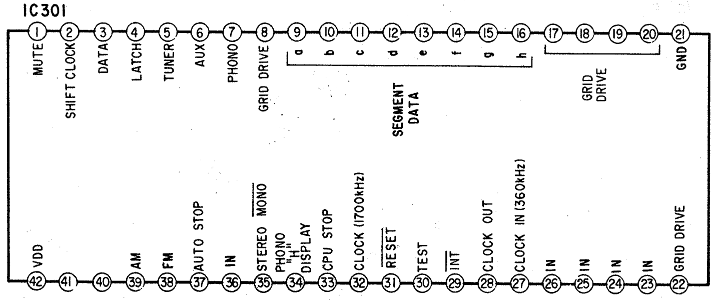

[DISPLAY BOARD]
(CONDUCTOR SIDE)
S304 MODE STEREO/MONO
(CASE)
FIP301 FLUORESCENT INDICATOR TUBE
IC301
IC302
X301
STEREO
TUNING
MEMORY
DIRECT TUNING
FM
AM
DAD/AUX
PHONO
SONY JAPAN 1-607-501-
0V 4.6V : TUNED
5.8V : STEREO 0V : MONO
0V 0.9V : PHONO
5.8V : MUTING ON
5.8V : TUNER 0V : OTHER
12

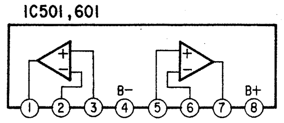
IC Q		IC301	305 302 304	301 303	307	306	IC302	
D	301		304	302 316	305 310 306	309 308 307	314 313	311 312

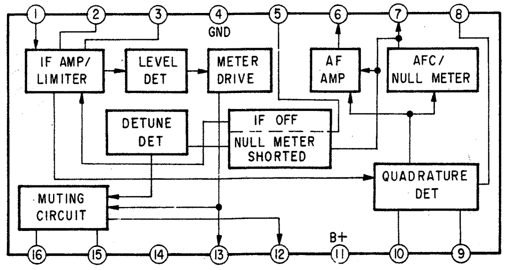
IC, Q	D
	406
	501
506 504 502	
IC502 503 505 501	
406 IC501	
407	401
206	
	403 703
201 202	
708 709 701	
IC401	
752 702	
	404
IC202 IC701	
IC201 207	808
	201
205	804 805 802 803 801
IC601 804 805 802 803 801 806	806
	807
	902

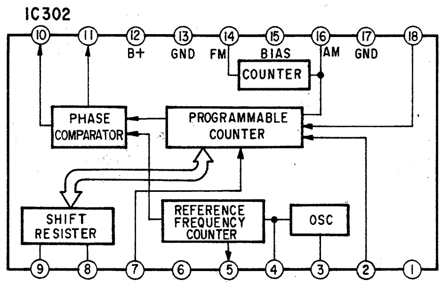

TM901 ANTENNA
300Ω
75Ω
AM
[MAIN BOARD]
(CONDUCTOR SIDE)
PHONO INPUT L-CH
PHONO INPUT R-CH
INPUT
PHONO
FM INPUT
FE201 FM FRONT-END
(CHASSIS)
T.P VC CHECK
T401 AM OSC
IC401
IC501
IC201
IC202
IC601
T.P NULL CHECK
T.P 19kHz CHECK
1.5V : STEREO 6.9V : MONO
0.6V : MUTING ON
5.8V : MUTING ON
(1Vp-p)
TREBLE
BASS
BALANCE
RV601
RV602
RV603
RV604
TAPE MONITOR

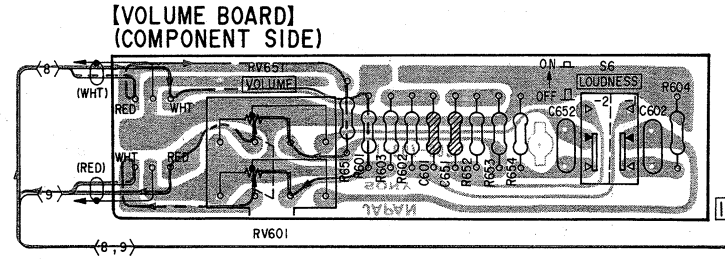

IC401
GND
B+ (RF)
RF AMP
MIX
IF AMP
AGC
OSC
METER DRIVER
DET
B+ (IF)
GND

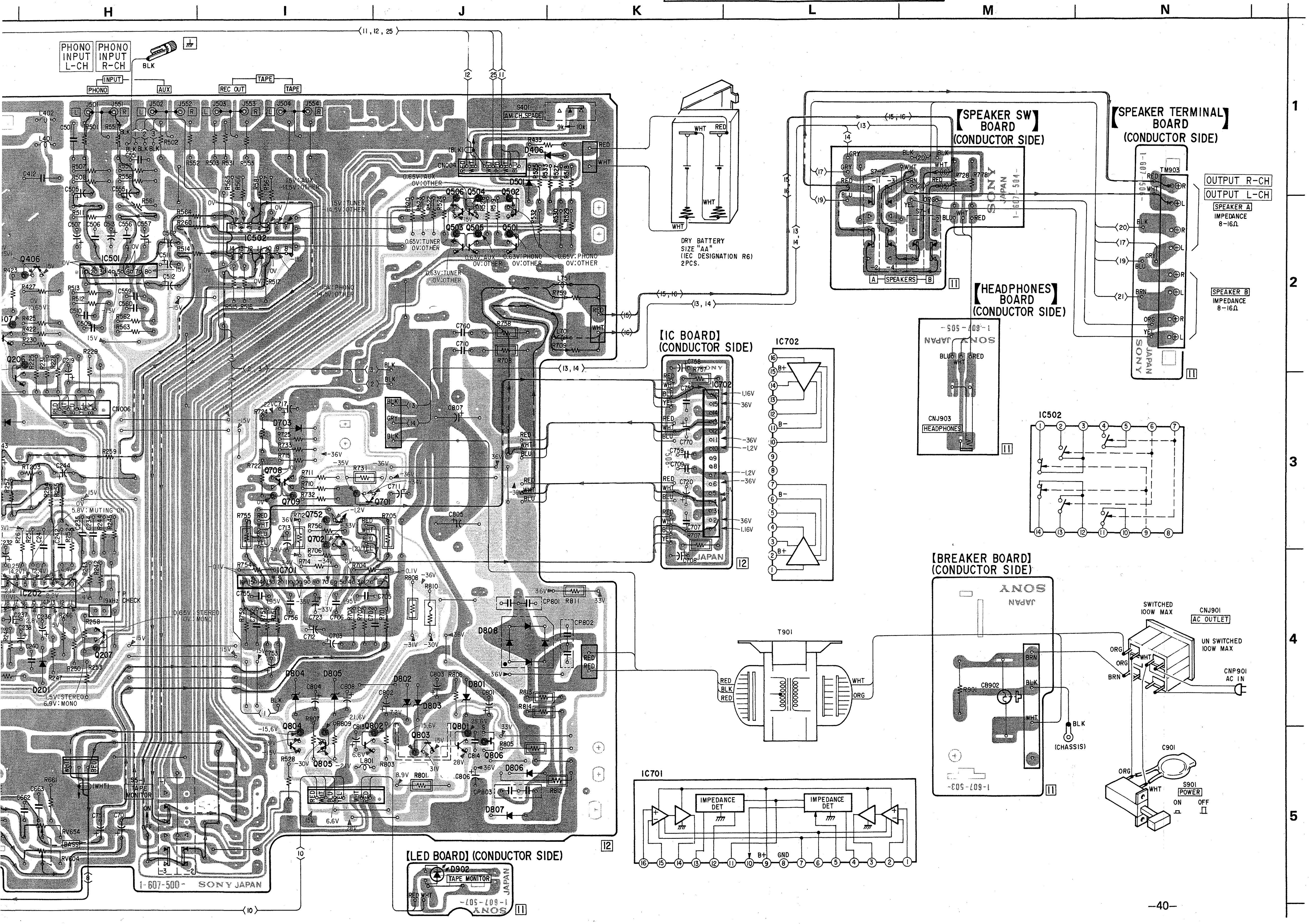

IC301
MUTE
SHIFT CLOCK
DATA
LATCH
TUNER
AUX
PHONO
GRID DRIVE
SEGMENT DATA
GRID DRIVE
GND
VDD
AM
FM
AUTO STOP
IN
STEREO MONO
PHONO "H" DISPLAY
CPU STOP
CLOCK (170kHz)
RESET
TEST
INT
CLOCK OUT
CLOCK IN (360kHz)
GRID DRIVE


IC501, 601
B−
B+


IC201
GND
IF AMP/LIMITER
LEVEL DET
METER DRIVE
AF AMP
AFC/NULL METER
DETUNE DET
IF OFF NULL METER SHORTED
MUTING CIRCUIT
QUADRATURE DET
B+

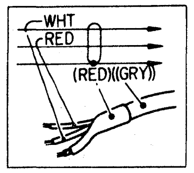

IC302
B+
GND
FM
BIAS
AM
GND
COUNTER
PHASE COMPARATOR
PROGRAMMABLE COUNTER
SHIFT RESISTER
REFERENCE FREQUENCY COUNTER
OSC


[VOLUME BOARD]
(COMPONENT SIDE)
RV651 VOLUME
S6 LOUDNESS
ON OFF
(WHT)
(RED)
RV601
11


H
I
J
K
L
M
N
1
2
3
4
5
PHONO INPUT L-CH
PHONO INPUT R-CH
BLK
INPUT
PHONO
AUX
TAPE
REC OUT
TAPE
S401 AM CH SPACE
9k 10k
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS.
WHT
RED
【SPEAKER SW】 BOARD (CONDUCTOR SIDE)
A SPEAKERS B
【SPEAKER TERMINAL】 BOARD (CONDUCTOR SIDE)
OUTPUT R-CH
OUTPUT L-CH
SPEAKER A IMPEDANCE 8-16Ω
SPEAKER B IMPEDANCE 8-16Ω
TM903
1-607-506-
SONY JAPAN
【HEADPHONES】 BOARD (CONDUCTOR SIDE)
1-607-505-
CNJ903 HEADPHONES
【IC BOARD】 (CONDUCTOR SIDE)
IC702
IC502
【BREAKER BOARD】 (CONDUCTOR SIDE)
1-607-503-
R901
C8902
(CHASSIS)
T901
SWITCHED 100W MAX
CNJ901 AC OUTLET
UN SWITCHED 100W MAX
CNP901 AC IN
C901
S901 POWER
ON OFF
IC701
IMPEDANCE DET
IMPEDANCE DET
B+
GND
【LED BOARD】 (CONDUCTOR SIDE)
D902 TAPE MONITOR
1-607-507-
1-607-500- SONY JAPAN
IC501
IC502
IC701
IC202
Q701
Q702
Q708
Q709
Q752
Q801
Q802
Q803
Q804
Q805
Q806
D801
D802
D803
D804
D805
D806
D807
D808
CP801
CP802
CP803
BASS
RV654
RV604
S5 TAPE MONITOR
19kHz CHECK
(11, 12, 25)
(13, 14)
(15, 16)
(10)

Note:

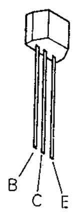
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

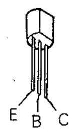
- [⁐] : indicates side identified with part number.
- ▨ : B + pattern
- ▨ : B – pattern
- ▬▶▬ : signal path
- ▬▶ : L-CH signal path
- ▬▶ : R-CH signal path

SEMICONDUCTOR LEAD LAYOUTS

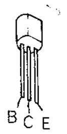
2SA1048
2SC2458



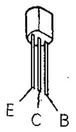
2SB740



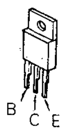
2SC710-14



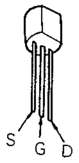
2SC1362



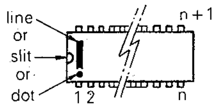
2SD880



2SK30A-GR3
2SK246

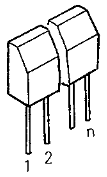


CX770A
CX778A
LA1235
LA1245
LA3390
TCP4621BP-6502

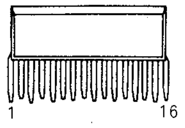

line
or
slit
or
dot
n+1
1 2
n

(Top view)

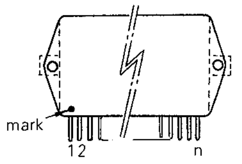
M5218L



STK3041

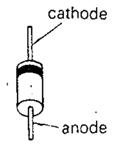


STK2129

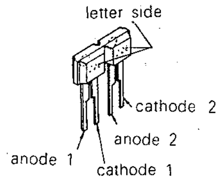


(Marking side view)

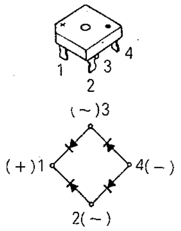
1S1555
10E2
EQA01-16R
EQA01-21R
EQA01-25R
EQA01-28R
EQB01-16
EQB01-21
EQB01-25
EAB01-28
RD7.5E-B1


cathode
anode

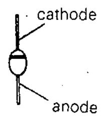
KV1226


letter side
cathode 2
anode 2
anode 1
cathode 1

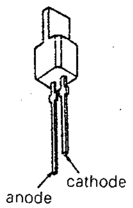
S4VB40



MV12N

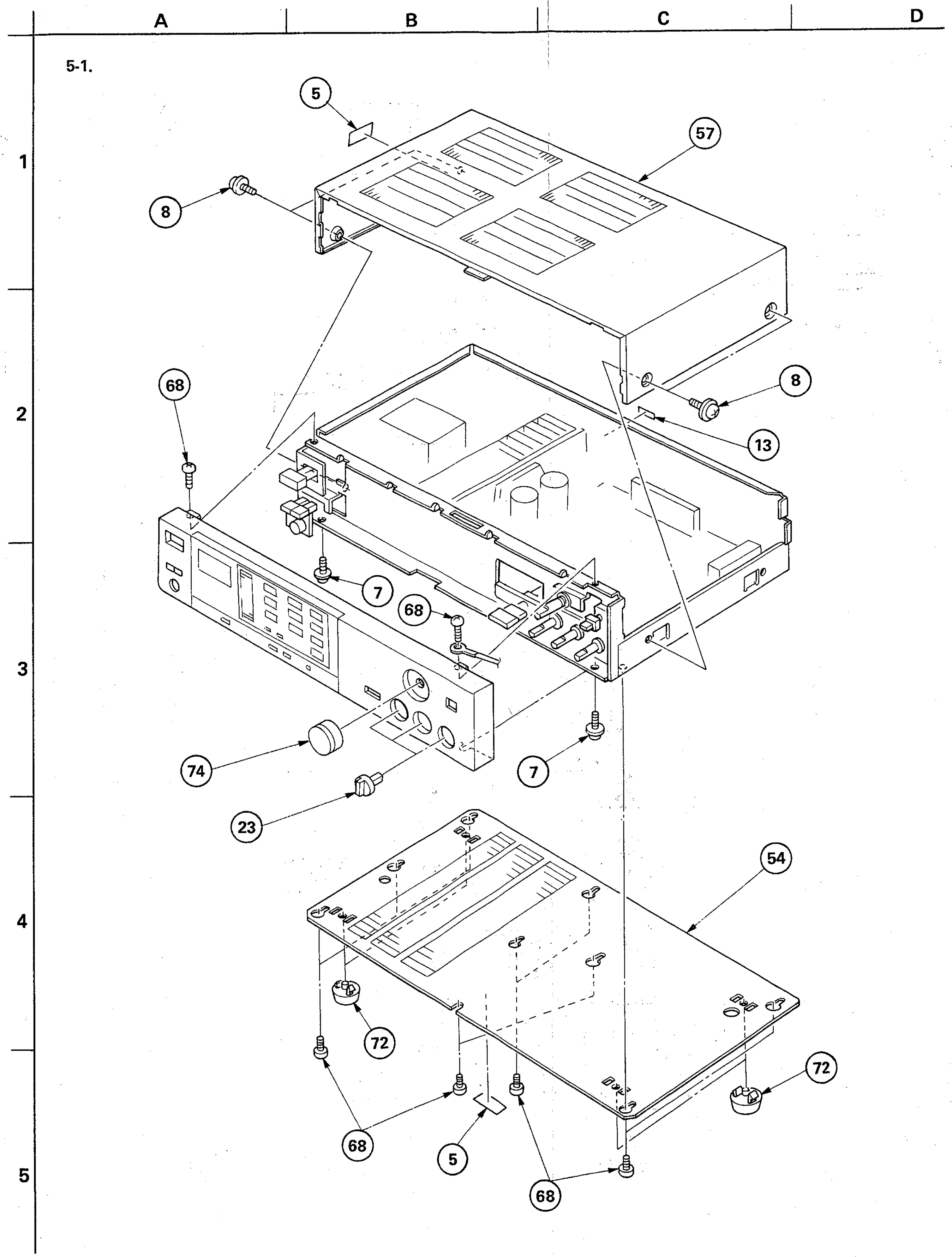

cathode
anode

GL9PR9
GL9NG9

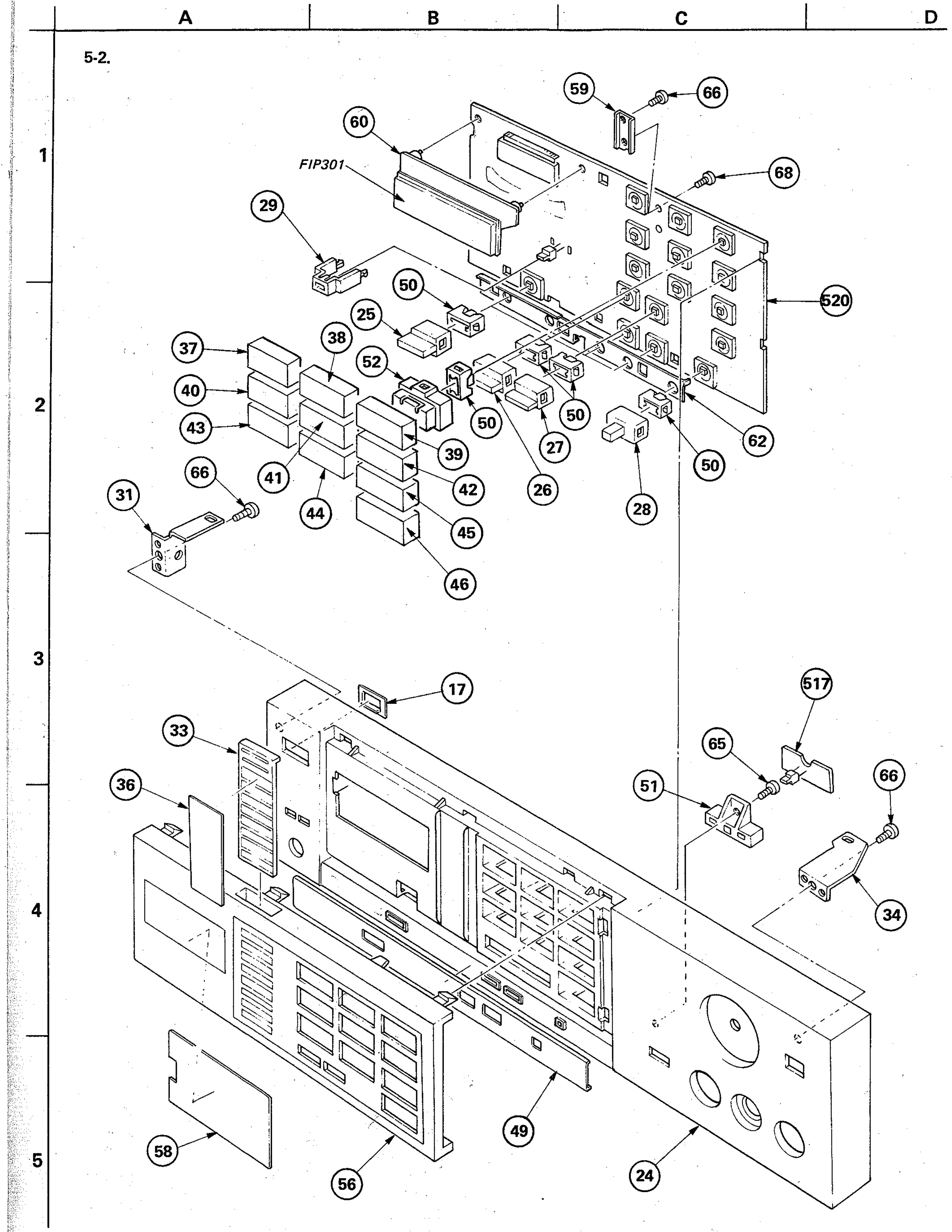

cathode
anode

SECTION 5
EXPLODED VIEWS AND PARTS LIST

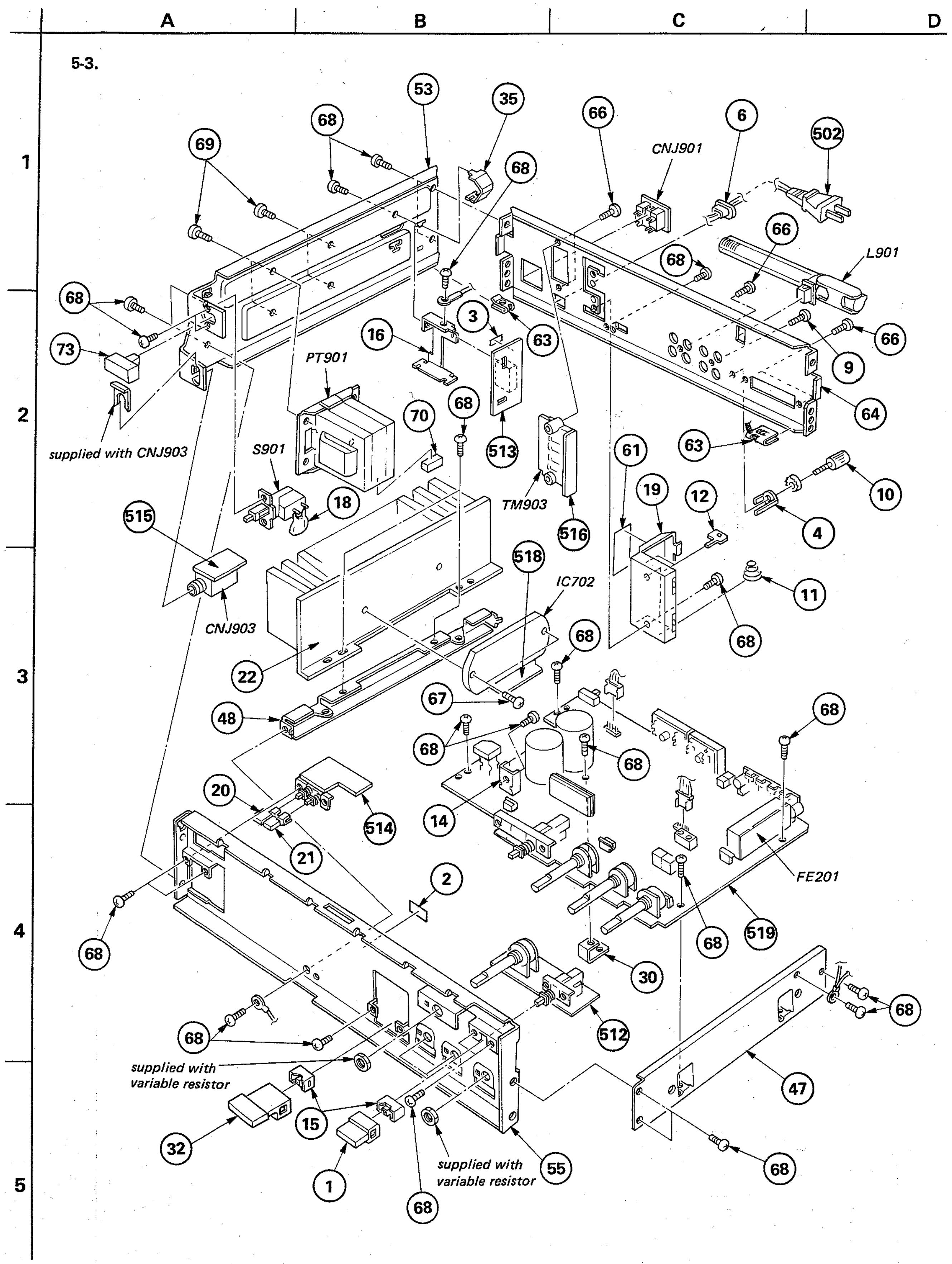
5-1.


A
B
C
D
1
2
3
4
5
5
57
8
8
68
13
7
68
74
7
23
54
72
72
68
5
68

5-2.


A
B
C
D
FIP301

5-3.


A
B
C
D
CNJ901
L901
PT901
supplied with CNJ903
S901
TM903
IC702
CNJ903
FE201
supplied with variable resistor
supplied with variable resistor

GENERAL SECTION

No.	Part No.	Description
1	2-363-012-00	KNOB (6X14), CORNER
2	3-701-030-00	LABEL, SERIAL NUMBER
3	♠;3-701-946-24	(Canadian)...LABEL, FUSE
4	3-701-993-00	SPACER, TERMINAL
5	3-703-079-21	LABEL, CAUTION (BACK)
6	3-703-244-00	BUSHING, CORD
7	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
8	3-703-354-11	SCREW (OS), CASE, CLAW
9	3-703-473-00	SCREW, TERMINAL
10	3-706-165-00	SCREW
11	3-883-424-00	SPRING
12	3-883-428-00	PLATE, TERMINAL (POSITIVE)
13	♠;4-844-449-00	LABEL
14	♠;4-857-562-00	HEAT SINK, TR
15	4-864-307-00	RING
16	♠;4-868-906-00	BRACKET, BREAKER
17	4-871-324-00	ESCUTCHEON, POWER KNOB
18	4-875-455-21	COVER (DIA. 20), CAPACITOR
19	4-875-530-00	CASE, BATTERY
20	4-876-722-01	KNOB (4X10), SQUARE
21	4-876-722-11	KNOB (4X10), SQUARE
22	♠;4-881-415-00	HEAT SINK (A)
23	4-881-520-01	KNOB (DIA. 18)
24	4-881-702-11	PANEL (A)
25	4-881-704-01	KNOB (5X16), SQUARE
26	4-881-704-11	KNOB (5X16), SQUARE
27	4-881-704-21	KNOB (5X16), SQUARE
28	4-881-705-01	KNOB (5X6), SQUARE
29	♠;4-881-706-00	HOLDER (B), LED
30	♠;4-881-707-00	BRACKET, PC BOARD
31	♠;4-881-708-00	BRACKET (LEFR), PANEL
32	4-881-709-00	KNOB (5X19), SQUARE
33	4-881-710-00	HOLDER, STATION
34	♠;4-881-713-00	BRACKET (RIGHT), PANEL
35	♠;4-881-714-00	PROTECTOR
36	4-881-718-11	LABEL, STATION
37	4-881-720-01	CAP, KNOB (12X25), SQUARE
38	4-881-720-11	CAP, KNOB (12X25), SQUARE
39	4-881-720-21	CAP, KNOB (12X25), SQUARE
40	4-881-720-31	CAP, KNOB (12X25), SQUARE
41	4-881-720-41	CAP, KNOB (12X25), SQUARE
42	4-881-720-51	CAP, KNOB (12X25), SQUARE
43	4-881-720-61	CAP, KNOB (12X25), SQUARE
44	4-881-720-71	CAP, KNOB (12X25), SQUARE
45	4-881-720-81	CAP, KNOB (12X25), SQUARE

GENERAL SECTION

No.	Part No.	Description
46	4-881-720-91	CAP, KNOB (12X25), SQUARE
47	♠;4-881-721-00	PLATE (RIGHT), SIDE
48	♠;4-881-722-00	BRACKET, HEAT SINK
49	4-881-724-31	PLATE, ORNAMENTAL
50	4-881-725-00	RING (TACT), FLEXIBLE
51	♠;4-881-727-00	HOLDER (A), LED
52	4-881-728-00	BASE, KNOB (12X25), SQUARE
53	♠;4-881-729-00	PLATE (LEFT), SIDE
54	♠;4-881-730-00	PLATE, BOTTOM
55	♠;4-881-731-00	PANEL (A), SUB
56	4-881-733-01	PANEL, 10 KEY
57	4-881-736-00	CASE
58	4-881-737-00	FILTER
59	♠;4-881-743-00	HOLDER, DISPLAY
60	4-881-744-00	HOLDER, FL TUBE
61	♠;4-881-747-00	LABEL, BATTERY
62	♠;4-881-751-00	CASE, SHIELD
63	♠;4-881-752-00	NUT, PLATE, SPECIAL
64	♠;4-881-901-01	(US).........PLATE, JACK
64	♠;4-881-901-12	(canadian)...PLATE, JACK
65	7-685-134-11	SCREW +P 2.6X8 TYPE2 NON-SLIT
66	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
67	7-685-649-11	SCREW +BVTP 3X14 TYPE2 N-S
68	7-685-871-01	SCREW +BVTT 3X6 (S)
69	7-685-880-01	SCREW +BVTT 4X6 (S)
70	9-911-846-XX	CUSHION
71	....	
72	X-4864-303-0	FOOT ASSY
73	X-4875-108-0	KNOB ASSY, POWER
74	X-4881-701-0	KNOB (DIA. 34) ASSY, R

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	1-501-184-00	ANTENNA, FEEDER
102	1-528-027-11	BATTERY, NEW SUPER (SUM-3)(NS)
103	3-701-630-00	BAG, POLYETHYLENE
104	3-703-390-01	(US)....INSTRUCTION
105	3-783-971-21	MANUAL, INSTRUCTION
106	3-783-971-31	(Canadian)...MANUAL, INSTRUCTION
107	3-795-424-11	(Canadian)...CARD, CONTROL
107	3-795-424-21	(US).........CARD, CONTROL
108	4-858-078-00	SHEET, PROTECTION
109	4-881-738-00	CUSHION, UPPER
110	4-881-739-00	CUSHION, LOWER
111	4-881-903-00	INDIVIDUAL CARTON
112	X-4881-702-0	LABEL ASSY (UC), STATION

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-508-994-00	PIN, CONNECTOR			
502	⚠.1-534-986-XX	(US).........CORD, POWER			
502	⚠.1-551-511-00	(Canadian)...CORD, POWER			
503	♠;1-535-115-00	TERMINAL			
504	♠;1-535-116-00	TERMINAL			
505	♠;1-535-117-00	TERMINAL			
506	♠;1-535-137-00	BASE POST 14MM (10MM PITCH)			
507	♠;1-560-060-00	PIN, CONNECTOR 2P			
508	♠;1-560-282-00	CONNECTOR PIN 7P			
509	♠;1-561-439-00	SOCKET, CONNECTOR 3P			
510	♠;1-561-440-00	SOCKET, CONNECTOR 4P			
511	♠;1-561-443-00	SOCKET, CONNECTOR 7P			
512	♠;1-607-502-00	PC BOARD, VOLUME			
513	♠;1-607-503-00	PC BOARD, BREAKER			
514	♠;1-607-504-00	PC BOARD, SPEAKER SW			
515	♠;1-607-505-00	PC BOARD, HEADPHONE			
516	♠;1-607-506-00	PC BOARD, SPEAKER TERMINAL			
517	♠;1-607-507-00	PC BOARD, LED			
518	♠;1-607-508-00	PC BOARD, IC			
519	♠;A-4409-632-A	MOUNTED PCB, MAIN			
520	♠;A-4472-096-A	MOUNTED PCB, DISPLAY			
C601	1-161-318-00	CERAMIC	390PF	10%	50V
C651	1-161-318-00	CERAMIC	390PF	10%	50V
C717	1-123-511-00	ELECT	33MF	20%	50V
C805	⚠.1-124-030-00	ELECT	6800MF	20%	42V
C806	⚠.1-123-513-00	ELECT	100MF	20%	50V
C807	⚠.1-124-030-00	ELECT	6800MF	20%	42V
C901	⚠.1-161-749-00	CERAMIC	10000PF		125V
CB902	⚠1-532-521-11	BREAKER, CIRCUIT			
CF201	1-527-307-XX	FILTER, CERAMIC			
CF203	1-527-307-XX	FILTER, CERAMIC			
CF401	1-527-599-00	FILTER, MECHANICAL			
CNJ901	⚠1-561-161-00	OUTLET, AC (2-GANG)			
CNJ903	1-507-669-00	JACK			
CP801	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CP802	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CP803	⚠.1-102-394-00	CERAMIC	(0.01MF+0.01MF)		250V
CT401	1-141-180-00	CAP, TRIMMER			
CT402	1-141-180-00	CAP, TRIMMER			
D201	8-719-815-55	DIODE 1S1555			
D301	8-719-815-55	DIODE 1S1555			
D302	8-719-931-25	DIODE EQB01-25			

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D304	8-719-815-55	DIODE 1S1555
D305	8-719-912-00	DIODE MV-12N
D306	8-719-815-55	DIODE 1S1555
D307	8-719-815-55	DIODE 1S1555
D308	8-719-815-55	DIODE 1S1555
D309	8-719-815-55	DIODE 1S1555
D310	8-719-815-55	DIODE 1S1555
D311	8-719-815-55	DIODE 1S1555
D312	8-719-815-55	DIODE 1S1555
D313	8-719-815-55	DIODE 1S1555
D314	8-719-815-55	DIODE 1S1555
D316	8-719-909-18	DIODE GL-9PR9
D401	8-719-912-27	DIODE KV1226
D402	8-719-912-27	DIODE KV1226
D403	8-719-815-55	DIODE 1S1555
D404	8-719-912-00	DIODE MV-12N
D406	8-719-815-55	DIODE 1S1555
D501	8-719-815-55	DIODE 1S1555
D703	8-719-200-02	DIODE 10E-2
D801	8-719-931-28	DIODE EQB01-28
D802	8-719-100-43	DIODE RD7.5E-B1
D803	8-719-931-16	DIODE EQB01-16
D804	8-719-931-16	DIODE EQB01-16
D805	8-719-931-21	DIODE EQB01-21
D806 ⚠.	8-719-200-02	DIODE 10E-2
D807 ⚠.	8-719-200-02	DIODE 10E-2
D808 ⚠.	8-719-504-40	DIODE S4VB40
D809	8-719-200-02	DIODE 10E-2
D902	8-719-909-19	DIODE GL-9NG9
FE201	A-4344-029-A	FRONT END
FIP301	1-519-256-00	INDICATOR TUBE, FLUORESCENT
IC201	8-759-812-35	IC LA1235
IC202	8-759-833-90	IC LA3390
IC301	8-759-200-66	IC TCP4621BP-6502
IC302	8-759-617-78	IC CX-778A
IC401	8-759-812-45	IC LA1245
IC501	8-759-600-02	IC M5218L
IC502	8-759-307-70	IC CX-770A
IC601	8-759-600-02	IC M5218L
IC701	8-749-930-41	IC STK-3041
IC702	8-749-921-29	IC STK-2129
J501	1-507-788-00	JACK, PIN 4P
J502	1-507-788-00	JACK, PIN 4P
J503	1-507-788-00	JACK, PIN 4P

ELECTRICAL PARTS

Ref.No.	Part No.	Description
J504	1-507-788-00	JACK, PIN 4P
J551	1-507-788-00	JACK, PIN 4P
J552	1-507-788-00	JACK, PIN 4P
J553	1-507-788-00	JACK, PIN 4P
J554	1-507-788-00	JACK, PIN 4P
L301	1-408-183-00	MICRO INDUCTOR 10UH
L302	1-408-183-00	MICRO INDUCTOR 10UH
L401	1-408-202-00	MICRO INDUCTOR 390UH
L402	1-408-195-00	MICRO INDUCTOR 100UH
L701 ●;	1-420-872-00	COIL, AIRE CORE
L751 ●;	1-420-872-00	COIL, AIRE CORE
L801	1-408-183-00	MICRO INDUCTOR 10UH
L901	1-401-887-41	ANTENNA, FERRITE-ROD (MW)
PT901⚠	1-447-302-00	TRANSFORMER, POWER
Q201	8-729-671-14	TRANSISTOR 2SC710-14
Q202	8-729-671-14	TRANSISTOR 2SC710-14
Q205	8-729-245-83	TRANSISTOR 2SC2458
Q206	8-729-245-83	TRANSISTOR 2SC2458
Q207	8-729-245-83	TRANSISTOR 2SC2458
Q301	8-729-245-83	TRANSISTOR 2SC2458
Q302	8-729-204-82	TRANSISTOR 2SA1048
Q303	8-729-204-82	TRANSISTOR 2SA1048
Q304	8-729-204-82	TRANSISTOR 2SA1048
Q305	8-729-245-83	TRANSISTOR 2SC2458
Q306	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q307	8-729-665-47	TRANSISTOR 2SC1362
Q406	8-729-204-82	TRANSISTOR 2SA1048
Q407	8-729-245-83	TRANSISTOR 2SC2458
Q501	8-729-245-83	TRANSISTOR 2SC2458
Q502	8-729-204-82	TRANSISTOR 2SA1048
Q503	8-729-245-83	TRANSISTOR 2SC2458
Q504	8-729-204-82	TRANSISTOR 2SA1048
Q505	8-729-245-83	TRANSISTOR 2SC2458
Q506	8-729-204-82	TRANSISTOR 2SA1048
Q701	8-729-204-82	TRANSISTOR 2SA1048
Q702	8-729-245-83	TRANSISTOR 2SC2458
Q708	8-729-204-82	TRANSISTOR 2SA1048

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ● " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q709	8-729-204-82	TRANSISTOR 2SA1048
Q752	8-729-245-83	TRANSISTOR 2SC2458
Q801	8-729-245-83	TRANSISTOR 2SC2458
Q802	8-729-245-83	TRANSISTOR 2SC2458
Q803	8-729-288-02	TRANSISTOR 2SD880
Q804	8-729-204-82	TRANSISTOR 2SA1048
Q805	8-729-374-02	TRANSISTOR 2SB740
Q806	8-729-224-61	TRANSISTOR 2SK246
R201	1-244-945-00	CARBON 1M 5% 1/2W
R212 ⚠.	1-247-109-00	CARBON 120 5% 1/4W F
R220 ⚠.	1-247-109-00	CARBON 120 5% 1/4W F
R241 ⚠.	1-247-109-00	CARBON 120 5% 1/4W F
R301	1-244-857-00	CARBON 220 5% 1/2W
R307 ⚠.	1-213-138-00	METAL 390 5% 1W F
R419 ⚠.	1-247-109-00	CARBON 120 5% 1/4W F
R424 ⚠.	1-247-115-00	CARBON 220 5% 1/4W F
R533	1-214-951-00	METAL 3.9M 1% 1/2W
R705 ⚠.	1-247-107-00	CARBON 100 5% 1/4W F
R707 ⚠.	1-247-115-00	CARBON 220 5% 1/4W F
R708 ⚠.	1-247-192-00	CARBON 10 5% 1/2W F
R709	1-244-817-00	CARBON 4.7 5% 1/2W
R712 ⚠.	1-247-101-00	CARBON 56 5% 1/4W F
R728	1-244-861-00	CARBON 330 5% 1/2W
R731 ⚠.	1-247-091-00	CARBON 22 5% 1/4W F
R755 ⚠.	1-247-107-00	CARBON 100 5% 1/4W F
R757 ⚠.	1-247-115-00	CARBON 220 5% 1/4W F
R758 ⚠.	1-247-192-00	CARBON 10 5% 1/2W F
R759	1-244-817-00	CARBON 4.7 5% 1/2W
R778	1-244-861-00	CARBON 330 5% 1/2W
R801 ⚠.	1-247-222-00	CARBON 180 5% 1/2W F
R805 ⚠.	1-206-472-00	METAL 24 5% 2W F
R808 ⚠.	1-213-143-00	METAL 1K 5% 1W F
R810 ⚠.	1-212-987-00	FUSIBLE 160 5% 1/2W F
R811 ⚠.	1-247-200-00	CARBON 22 5% 1/2W F
R812 ⚠.	1-206-672-00	METAL 2.2K 5% 2W F
R813 ⚠.	1-247-079-00	CARBON 4.7 5% 1/4W F
R814 ⚠.	1-247-079-00	CARBON 4.7 5% 1/4W F
R901 ⚠.	1-202-725-00	COMPOSITION 3.3M 10% 1/2W
RT201	1-226-235-00	RES, ADJ, CARBON 5K
RT202	1-226-236-00	RES, ADJ, CARBON 10K
RT203	1-226-238-00	RES, ADJ, CARBON 50K
RV601	1-228-612-00	RES, VAR, CARBON 100K/100K
RV602	1-228-610-00	RES, VAR, CARBON 250K
RV603	1-228-611-00	RES, VAR, CARBON 20K/20K

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RV604	1-228-611-00	RES, VAR, CARBON 20K/20K
RV651	1-228-612-00	RES, VAR, CARBON 100K/100K
RV653	1-228-611-00	RES, VAR, CARBON 20K/20K
RV654	1-228-611-00	RES, VAR, CARBON 20K/20K
S5	1-554-119-00	SWITCH, PUSH (1 KEY)
S6	1-553-884-00	SWITCH, PUCH (1 KEY)
S7	1-553-761-00	SWITCH, PUSH (2 KEY)
S301	1-552-412-00	SWITCH, KEY BOARD
S302	1-552-412-00	SWITCH, KEY BOARD
S304	1-552-412-00	SWITCH, KEY BOARD
S305	1-552-412-00	SWITCH, KEY BOARD
S306	1-552-412-00	SWITCH, KEY BOARD
S307	1-552-412-00	SWITCH, KEY BOARD
S308	1-552-412-00	SWITCH, KEY BOARD
S309	1-552-412-00	SWITCH, KEY BOARD
S310	1-552-412-00	SWITCH, KEY BOARD
S311	1-552-412-00	SWITCH, KEY BOARD
S312	1-552-412-00	SWITCH, KEY BOARD
S313	1-552-412-00	SWITCH, KEY BOARD
S314	1-552-412-00	SWITCH, KEY BOARD
S315	1-552-412-00	SWITCH, KEY BOARD
S316	1-552-412-00	SWITCH, KEY BOARD
S318	1-552-412-00	SWITCH, KEY BOARD
S401	1-552-370-00	SWITCH, SLIDE
S901 ⚠.	1-553-319-00	SWITCH, PUSH (AC POWER)
T201	1-404-338-00	TRANSFORMER, DISCRIMINATOR (FM)
T202	1-404-339-00	TRANSFORMER, DISCRIMINATOR
T401	1-405-927-00	COIL, MW OSC
T403	1-409-348-00	COIL, MECHANICAL FILTER
TM901	1-536-708-00	TERMINAL BOARD, PUSH 4P
TM903	1-536-706-00	TERMINAL BOARD (SP)
XT301	1-527-731-00	OSCILLATOR, CRYSTAL

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTROLYTIC CAPACITORS

	RATING → : Use the high voltage rated one.					
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

	RATING						
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

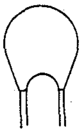
0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

	RATING → : Use the high voltage rated one.				
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

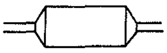


TANTALUM CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (μF)	3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

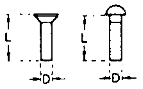
1/4 WATT CARBON RESISTORS

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

L: Length in mm
D: Diameter in mm
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).

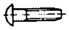
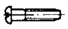
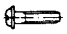
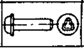
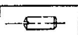
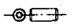
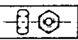
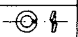


Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

TROUBLE CHECKS

OFF-THE-AIR PROGRAMS

STEREO indicator does not light when receiving stereo programs
- Adjust the antenna.
- Press the FM MODE switch.

STEREO indicator flickers
- Adjust the antenna or connect an external FM antenna.
- Press the FM MODE switch to disengage the stereo mode.

The frequency/function display figures do not stop at the desired station during automatic tuning
- The signal strength is too weak for automatic tuning.

Adjust the antenna for optimum reception or tune in the station with the direct access tuning system.

Tuning cannot be done correctly when the PRESET TUNING button is pressed
- Memorize the frequency correctly.
- Install or replace with new batteries for memory back-up.

Incorrect figures appear on the frequency/function display window
- Install the batteries again. (Page 10)

AM stations cannot be tuned in
- The AM channel plan selector at the rear is set incorrectly.

Set the selector correctly according to the AM frequency allocation system of your country. (Page 6)

Severe hum or noise
- Use shielded connecting cords.
- Ground the receiver.
- Avoid long horizontal runs of antenna lead.
- Keep connecting cords (or antenna lead-in) away from transformers or motors, and at least 3 meters (10 feet) from TV sets and fluorescent lights.
- Adjust the antenna.
- Keep the speaker cords, connecting cords and power cords from the ferrite-bar antenna at the rear.

Ignition noise
- Install the outdoor antenna away from heavy traffic.
- Use a shielded or coaxial lead-in for the antenna.

Electrostatic charge
- Ground the receiver.

GENERAL

No audio
- Check speaker and program source connections.
- Check the settings of the TAPE MONITOR switch.
- Check the SPEAKERS switches setting.
- Turn up the volume.
- Turn off the power and turn it on again.

No audio from one channel or unbalanced left and right volume
- Adjust the BALANCE control.
- Check the speaker and input connections of the inoperative channel.

Reversed left and right sound
- Check the speaker cord connection and speaker location.

Lack of bass sound or obscure instrument position
- Check the speaker connection for proper phasing.

Severe hum or noise
- Use shielded connecting cords.
- Keep the connecting cords away from transformers or motors and at least 3 meters (10 feet) from TV sets and fluorescent lights.
- Ground the receiver.

Rustling noise
- Make secure connections.
- Wipe the plugs and jacks with a cloth lightly dampened with methanol.

Sony Corporation
Audio & Video Group ©1982